

April 9, 1990

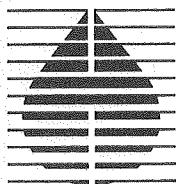
APR 11, 1990

REVIEW DRAFT

REVIEW DRAFT

RAW ANALYTICAL DATA SUBMITTAL
PART 2, REMEDIAL INVESTIGATIVE WORK
PHASE 2B
MONTROSE SITE
TORRANCE, CALIFORNIA

OCTOBER 1989 THROUGH FEBRUARY 1990
GROUNDWATER AND SOIL SAMPLING



HARGIS+ASSOCIATES, INC.



HARGIS + ASSOCIATES, INC.

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April 2, 1990

VIA FEDERAL EXPRESS

REVIEW DRAFT

Ms. Janet Bell
MCDONNELL DOUGLAS CORPORATION
Internal Mail Code 211-40
10833 Valleyview
Cypress, CA 90630

Re: Raw Analytical Data Submittal, Part 2,
Remedial Investigation Work, Phase 2B,
Montrose Site, Torrance, California, October 1989
Through February 1990, Groundwater and Soil Sampling

Dear Ms. Bell:

Enclosed please find portions of the above-referenced document that pertain to the groundwater sampling conducted at the McDonnell Douglas C-6 facility during October 1989 and February 1990. Field data for monitor well construction and groundwater sampling will be forwarded approximately three weeks after initial sampling of the two upper Bellflower aquitard monitor wells that were recently installed at the C-6 facility.

Please contact me if you have any questions regarding this submittal.

Sincerely,

HARGIS + ASSOCIATES, INC.

A handwritten signature in black ink that reads "Matthew P. Wiedlin".

Matthew P. Wiedlin
Project Hydrogeologist

MPW:kag

Enclosure

bell102.218

Other Offices:

Tucson, AZ
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HARGIS + ASSOCIATES, INC.

REVIEW DRAFT

RAW ANALYTICAL DATA SUBMITTAL
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PHASE 2B
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OCTOBER 1989 THROUGH FEBRUARY 1990
GROUNDWATER AND SOIL SAMPLING

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- B* BROWN AND CALDWELL RAW ANALYTICAL DATA FROM OCTOBER-NOVEMBER 1989 QUARTERLY GROUNDWATER SAMPLING ROUND
- C* ANALYTICAL TECHNOLOGIES, INC. RAW ANALYTICAL DATA FOR LABORATORY SPLIT SAMPLES FROM OCTOBER-NOVEMBER 1989 QUARTERLY SAMPLING ROUND
- D SAMPLE IDENTIFICATION AND CROSS REFERENCE TABLES, NOVEMBER 1989, DECEMBER 1989, AND JANUARY 1990 INITIAL GROUNDWATER SAMPLING ROUNDS
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- G* SAMPLE IDENTIFICATION AND CROSS REFERENCE TABLES, FEBRUARY 1990 QUARTERLY GROUNDWATER SAMPLING ROUND
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- L* SAMPLING DIFFICULTIES AND DEVIATIONS FROM THE SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN

* Appendices submitted to McDonnell Douglas Corporation



HARGIS + ASSOCIATES, INC.

RAW ANALYTICAL DATA SUBMITTAL
PART 2, REMEDIAL INVESTIGATION WORK
PHASE 2B
MONTROSE SITE
TORRANCE, CALIFORNIA

OCTOBER 1989 THROUGH FEBRUARY 1990
GROUNDWATER AND SOIL SAMPLING

1.0 INTRODUCTION

This raw analytical data submittal has been prepared on behalf of Montrose Chemical Corporation (Montrose) as part of the Remedial Investigation (RI). This submittal is being provided in accordance with the Administrative Order on Consent, U.S. Environmental Protection Agency (EPA) Docket No. 85-04.

This raw analytical data submittal contains data obtained during groundwater sampling conducted during the period October 1989 through February 1990 (Appendices A through I) and soil sampling conducted during the period October 1989 through December 1989 (Appendices J and K). Two additional field data submittals and one additional raw analytical data submittal will be prepared in conjunction with this submittal as the data become available. One field data submittal will contain monitor well construction data including lithologic logs for the monitor wells installed between August 1989 and April 1990. The second field data submittal will contain field data obtained during the initial sampling for monitor wells MW-16 through MW-22 and field data collected during the annual groundwater sampling round, scheduled for late April 1990. The additional raw analytical data submittal will contain laboratory data for groundwater samples collected during April 1990.



2.0 GROUNDWATER SAMPLING

Groundwater sampling conducted during the period October 1989 through February 1990 consisted of two quarterly sampling rounds and five initial sampling rounds for newly constructed monitor wells (Table 1). The first quarterly groundwater sampling round was conducted during the periods October 23 through October 28, 1989, and November 16 through November 18, 1989. The second quarterly groundwater sampling round was conducted during the period February 20 through February 25, 1990. Initial groundwater sampling rounds for new wells were conducted in November 1989, December 1989 and January 1990. Groundwater sampling was performed in accordance with the EPA approved Sampling Plan and Quality Assurance Project Plan dated May 20, 1988 (Hargis + Associates, Inc., 1988a and 1988b).

The first quarterly groundwater sampling round initially scheduled for October 1989 was completed during two separate periods due to theft of sampling equipment. Monitor wells not sampled in October 1989 were sampled during the period November 16 through 18, 1989. Monitor well LG-1 was not sampled during this quarterly round because the dedicated sample pump had malfunctioned. Additional field blanks were prepared at specific wells for EPA Method 608/8080 analysis during this quarterly round. These wells were selected based upon trending of previous analytical results.

The scope of groundwater sampling was reduced according to two EPA-approved revisions (EPA, 1989 and 1990). The first change in scope reduced groundwater sampling from quarterly to semiannual for specific monitor wells. Monitor wells that had been sampled twice initially, and quarterly for one year, were reduced to semiannual sampling (EPA, 1989). Thirteen monitor wells, including monitor well LG-1, were not sampled during the February 1990 quarterly groundwater sampling round based on this change in scope. However, monitor well LG-1 should have been sampled during the February 1990 quarterly groundwater sampling round because it was not sampled during the October-November 1989 quarterly groundwater sampling round.



The second change in scope reduced groundwater sampling for pesticide analysis. Groundwater samples were not collected for pesticide analysis from monitor wells which did not contain detectable pesticide concentrations in the two previous sampling rounds (EPA, 1990). Twenty-three monitor wells were not sampled for pesticide analysis during the February 1990 quarterly groundwater sampling based on this second change in scope.

Groundwater samples, including duplicate samples and field blanks collected during the sampling rounds, were submitted to Brown and Caldwell Laboratories, Glendale, California, for pesticide analysis using EPA Method 608/8080 and volatile organic compound (VOC) analysis using EPA Method 624/8240. Trip blanks were submitted to Brown and Caldwell Laboratories and Analytical Technologies, Inc. (ATI), San Diego, California, for VOC analysis using EPA Method 624/8240. Laboratory split samples collected during the sampling rounds were submitted to ATI for pesticide analysis using EPA Method 608/8080 and VOC analysis using EPA Method 624/8240. All groundwater samples submitted for VOC analysis were collected in pre-acidified vials. Samples collected for common ion and nitrate analysis were submitted to Brown and Caldwell Laboratories.

During the October-November 1989 quarterly round, approximately 120 milliliters (ml) of floating free product was recovered from monitor well MW-7 five days prior to groundwater sampling. A sample of this free product was submitted to Brown and Caldwell Laboratories for analysis of benzene, toluene, ethylbenzene, xylene and total petroleum hydrocarbons by modified EPA Method 8015 and for analysis of organic lead.



3.0 SOIL SAMPLING

Soil sampling was conducted during the period October 1989 through December 1990. Thirty-two soil samples were collected during monitor well construction (Table 2). A Gardner-Denver mud rotary drill rig with a 5-1/4-inch drill bit was used to drill the exploratory borings and monitor wells from which soil samples were collected. Soil samples were collected using a pitcher barrel soil sampler. Soil samples were submitted to ATI for total organic carbon analysis using EPA Method 9060.



4.0 REFERENCES CITED

- Hargis + Associates, Inc., 1988a. Remedial Investigative Work, Part 2, Quality Assurance Project Plan, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; May 20, 1988.
- _____, 1988b. Remedial Investigative Work, Part 2, Phase 2A, Groundwater, Soil, and Sediment Sampling Plan, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; May 20, 1988.
- U.S. Environmental Protection Agency (EPA), 1989. Letter from Ms. J. Miller, EPA, Region IX, to Mr. R. Niemeyer, Hargis + Associates, Inc. re: Response to Groundwater Sampling Proposals for the Montrose Site; September 1, 1989.
- _____, 1990. Letter from Ms. J. Miller, EPA, Region IX, to Mr. J.D. Mohrbacher, Hargis + Associates, Inc. re: EPA Response to the Reduction in Groundwater Sampling; February 14, 1990.

Tables

TABLE 1
SUMMARY OF GROUNDWATER SAMPLING

WELL ID	DATES OF SAMPLING ROUND.....						
	OCT 23-NOV 18, 1989 QUARTERLY ROUND	NOV 6, 1989 INITIAL ROUND	NOV 13-17, 1989 INITIAL ROUND	DEC 7-8, 1989 INITIAL ROUND	DEC 19-20, 1989 INITIAL ROUND	JAN 10, 1990 INITIAL ROUND	FEB 21-25, 1990 QUARTERLY ROUND
MW-1	A,B						
MW-2	A,B						
MW-3	A,B						
MW-4	A,B						
MW-5	A,B						
MW-6	A,B						A,B
MW-7	A,B,C						A
MW-8	A,B						A,B
MW-9	A,B						A
MW-10	A,B						A
MW-11	A,B						A,B
MW-12	A,B						A,B
MW-13	A,B						A,B
MW-14	A,B						A,B
MW-15	A,B						A,B
MW-23	A,B,D		A,B				A
MW-24	A,B,D		A,B				A
MW-25	A,B,D		A,B				A,B
MW-26	A,B,D		A,B				A

A = Analyzed for volatile organic compounds (VOCs) (EPA Method 624/8240)

B = Analyzed for pesticides (EPA Method 608/8080)

C = Approximately 120 milliliters of floating free product was recovered from the well prior to groundwater sampling; a sample was submitted to the laboratory for benzene, toluene, ethylbenzene, xylene and total petroleum hydrocarbons (Modified EPA Method 8015) and organic lead analyses

D = Analyzed for nitrates and common ions



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TABLE 1 (continued)
SUMMARY OF GROUNDWATER SAMPLING
Page 2

WELL ID	DATES OF SAMPLING ROUND.....						
	OCT 23-NOV 18, 1989 QUARTERLY ROUND	NOV 6, 1989 INITIAL ROUND	NOV 13-17, 1989 INITIAL ROUND	DEC 7-8, 1989 INITIAL ROUND	DEC 19-20, 1989 INITIAL ROUND	JAN 10, 1990 INITIAL ROUND	FEB 21-25, 1990 QUARTERLY ROUND
BF-1	A,B						
BF-2	A,B						
BF-3	A,B						
BF-4	A,B						
BF-5	A,B						A
BF-6	A,B						A,B
BF-7	A,B						A,B
BF-8	A,B						A,B
BF-9	A,B						A,B
BF-10				A,B,D	A,B		A
BF-11				A,B,D	A,B		A
BF-12				A,B,D	A,B		A
BF-13		A,B,D	A,B				A
BF-14	A,B,D		A,B				A,B
BF-15	A,B,D		A,B				A
BF-16					A,B	A,B,D	A
BF-17					A,B,D	A,B	A

A = Analyzed for volatile organic compounds (VOCs) (EPA Method 624/8240)

B = Analyzed for pesticides (EPA Method 608/8080)

C = Approximately 120 milliliters of floating free product was recovered from the well prior to groundwater sampling; a sample was submitted to the laboratory for benzene, toluene, ethylbenzene, xylene and total petroleum hydrocarbons (Modified EPA Method 8015) and organic lead analyses

D = Analyzed for nitrates and common ions



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TABLE 1 (continued)
SUMMARY OF GROUNDWATER SAMPLING
Page 3

WELL ID	DATES OF SAMPLING ROUND						
	OCT 23-NOV 18, 1989 QUARTERLY ROUND	NOV 6, 1989 INITIAL ROUND	NOV 13-17, 1989 INITIAL ROUND	DEC 7-8, 1989 INITIAL ROUND	DEC 19-20, 1989 INITIAL ROUND	JAN 10, 1990 INITIAL ROUND	FEB 21-25, 1990 QUARTERLY ROUND
G-1	A,B						
G-2	A,B						
G-3	A,B						
G-4	A,B						A,B
G-5	A,B						A
G-6	A,B						A
G-7	A,B						A,B
G-8					A,B,D	A,B	A
G-9				A,B,D	A,B		A
G-11		A,B,D	A,B				A,B
G-12	A,B,D		A,B				A
G-13	A,B,D		A,B				A
LG-1							
LG-2	A,B						A
LW-1	A,B,D		A,B				A,B
LW-2	A,B,D		A,B				A
LW-3				A,B,D	A,B		A

A = Analyzed for volatile organic compounds (VOCs) (EPA Method 624/8240)

B = Analyzed for pesticides (EPA Method 608/8080)

C = Approximately 120 milliliters of floating free product was recovered from the well prior to groundwater sampling; a sample was submitted to the laboratory for benzene, toluene, ethylbenzene, xylene and total petroleum hydrocarbons (Modified EPA Method 8015) and organic lead analyses

D = Analyzed for nitrates and common ions



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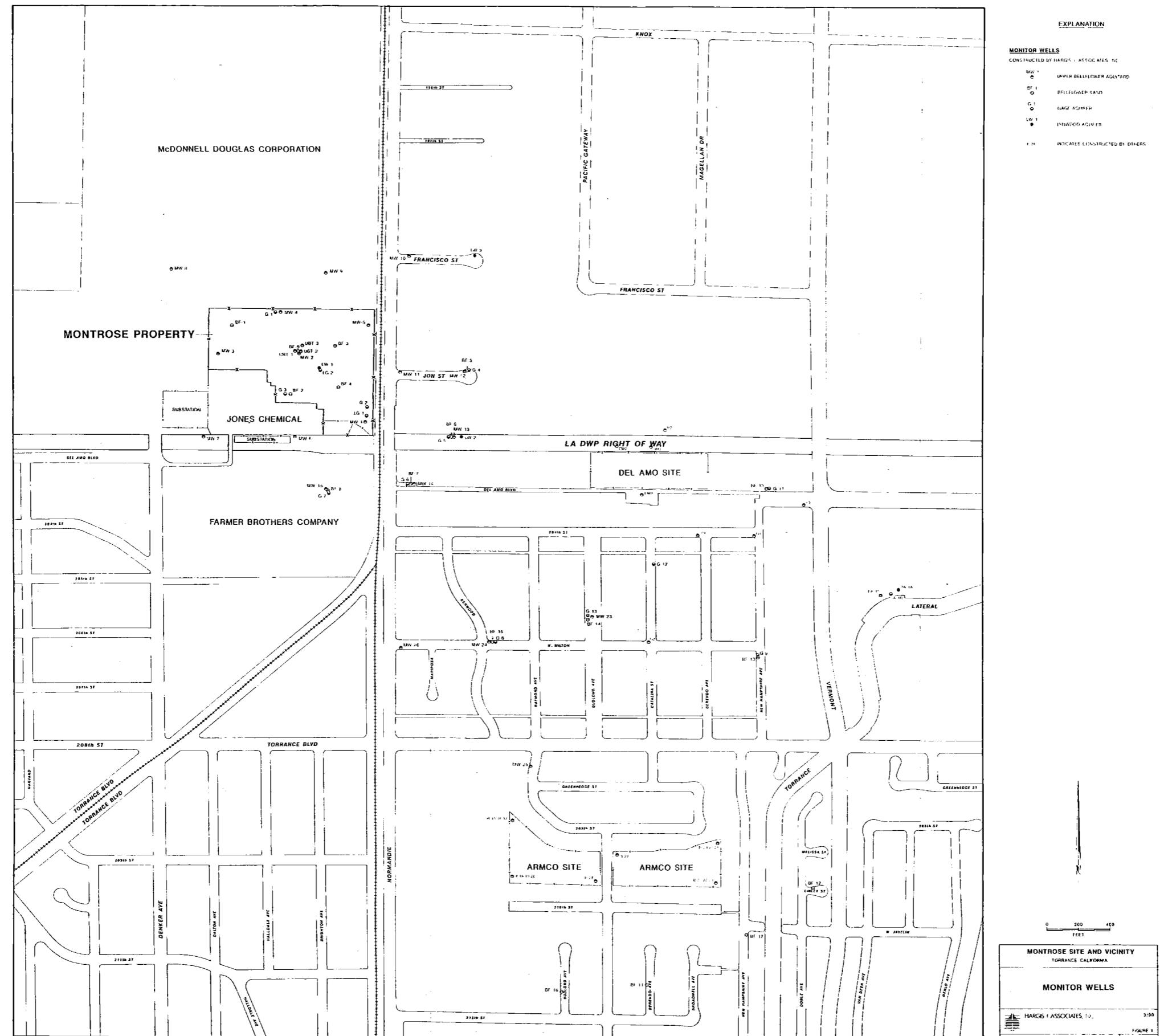
TABLE 2
SUMMARY OF SOIL SAMPLING

<u>SOIL BORING ID</u>	<u>SOIL SAMPLE ID</u>	<u>SAMPLE DEPTH (feet)</u>	<u>DATE SAMPLED</u>
G-13	G-13 83.0-83.5	83.0-83.5	10-05-89
G-13	G-13 102.7-103.2	102.7-103.2	10-05-89
G-13	G-13 111.9-112.4	111.9-112.4	10-05-89
G-13	G-13 111.9-112.4D	111.9-112.4	10-05-89
G-13	G-13 119.5-120.0	119.5-120.0	10-05-89
G-13	G-13 121.5-122.0	121.5-122.0	10-05-89
G-13	G-13 145.9-146.2	145.9-146.2	10-05-89
G-13	G-13 157.2-157.6	157.2-157.6	10-07-89
G-13	G-13 193.65-194.0	193.65-194.0	10-07-89
EB-9	EB-9 76.0	76.0	10-29-89
EB-9	EB-9 117.6	117.6	10-29-89
EB-9	EB-9 137.7	137.7	10-29-89
EB-9	EB-9 182.7	182.7	10-29-89
EB-9	EB-9 227.0	227.0	10-30-89
EB-9	EB-9 247.6	247.6	10-30-89
LW-3	LW-3 91.4-91.7	91.4-91.7	11-14-89
LW-3	LW-3 122.5-123.0	122.5-123.0	11-14-89
LW-3	LW-3 181.4-181.1	181.4-181.1	11-14-89
LW-3	LW-3 247.6-248.0	247.6-248.0	11-18-89
EB-13	EB-13 82.1-82.6	82.1-82.6	11-28-89
EB-13	EB-13 121.0	121.0	11-28-89
EB-13	EB-13 122.4-122.8	122.4-122.8	11-28-89
EB-13	EB-13 147.2-147.8	147.2-147.8	11-28-89
EB-13	EB-13 165.95-166.6	165.95-166.6	11-28-89
EB-13	EB-13 218.6-219.2	218.6-219.2	11-29-89
G-9	G-9 85.1-85.55	85.1-85.55	12-02-89
G-9	G-9 125.2-125.8	125.2-125.8	12-02-89
G-9	G-9 165.2-165.8	165.2-165.8	12-02-89
G-9	G-9 186.5-186.95	186.5-186.85	12-04-89
G-8	G-8 105.75-106.0	105.75-106.0	12-11-89
G-8	G-8 132.7-133.0	132.7-133.0	12-11-89
G-8	G-8 180.8-181.0	180.8-181.0	12-11-89



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Illustrations



Appendix A



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APPENDIX A

SAMPLE IDENTIFICATION AND CROSS REFERENCE TABLES OCTOBER-NOVEMBER 1989 QUARTERLY GROUNDWATER SAMPLING ROUND



APPENDIX A

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Table

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- A-3 FIELD BLANK SAMPLE IDENTIFICATION VERSUS BROWN AND CALDWELL LOG NUMBER
- A-4 TRIP BLANK SAMPLE IDENTIFICATION VERSUS BROWN AND CALDWELL LOG NUMBER
- A-5 BROWN AND CALDWELL LABORATORY QUALITY CONTROL SAMPLE IDENTIFICATION
- A-6 LABORATORY SPLIT SAMPLE IDENTIFICATION VERSUS ANALYTICAL TECHNOLOGIES, INC. SAMPLE LOG NUMBER
- A-7 TRIP BLANK SAMPLE IDENTIFICATION VERSUS ANALYTICAL TECHNOLOGIES, INC. SAMPLE LOG NUMBER
- A-8 ANALYTICAL TECHNOLOGIES, INC. LABORATORY QUALITY CONTROL SAMPLE IDENTIFICATION

TABLE A-1

MONTROSE MONITOR WELL
SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>MONTROSE MONITOR WELL SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
MW-1	11-17-89	G89-11-319-2
MW-2(a)		
MW-3	10-28-89	G89-10-559-8
MW-4	11-16-89	G89-11-308-1
MW-5	10-28-89	G89-10-559-6
MW-6	10-27-89	G89-10-564-8
MW-7(b)	10-23-89	G89-10-486-1
MW-7	10-28-89	G89-10-559-5
MW-8	10-27-89	G89-10-564-4
MW-9	10-27-89	G89-10-564-5
MW-10	10-27-89	G89-10-564-6
MW-11	10-27-89	G89-10-564-7
MW-12	10-25-89	G89-10-511-1
MW-13	10-25-89	G89-10-511-2
MW-14	10-24-89	G89-10-487-1
MW-15	10-24-89	G89-10-487-2
MW-23	10-26-89	G89-10-538-3
MW-23	10-26-89	G89-10-537-3
MW-24	10-26-89	G89-10-538-5
MW-24	10-26-89	G89-10-537-5
MW-25	10-28-89	G89-10-560-2
MW-25	10-28-89	G89-10-559-2
MW-26	10-28-89	G89-10-560-1
MW-26	10-28-89	G89-10-559-1
BF-1	11-18-89	G89-11-319-5
BF-2	10-28-89	G89-10-559-10
BF-3	10-28-89	G89-10-559-7
BF-4	10-28-89	G89-10-559-9
BF-5	10-25-89	G89-10-511-3
BF-6	10-25-89	G89-10-511-4

- (a) Sample not submitted to the laboratory due to presence of free product.
- (b) Sample from approximately 120 milliliter (ml) of free product bailed from well.



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TABLE A-1 (continued)
 MONTROSE MONITOR WELL
 SAMPLE IDENTIFICATION
 VERSUS BROWN AND CALDWELL LOG NUMBER
 Page 2

<u>MONTROSE MONITOR WELL SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
BF-7	10-24-89	G89-10-487-4
BF-8	10-24-89	G89-10-487-5
BF-9	11-17-89	G89-11-319-4
BF-14	10-26-89	G89-10-538-2
BF-14	10-26-89	G89-10-537-2
BF-15	10-26-89	G89-10-538-4
BF-15	10-26-89	G89-10-537-4
G-1	11-16-89	G89-11-308-2
G-2	11-17-89	G89-11-319-3
G-3	10-28-89	G89-10-559-11
G-4	10-25-89	G89-10-511-6
G-5	10-25-89	G89-10-511-7
G-6	10-24-89	G89-10-487-6
G-7	10-24-89	G89-10-487-7
G-12	10-27-89	G89-10-565-1
G-12	10-27-89	G89-10-564-1
G-13	10-26-89	G89-10-538-1
G-13	10-26-89	G89-10-537-1
LG-1(c)		
LG-2	11-17-89	G89-11-319-1
LW-1	10-25-89	G89-10-511-9
LW-1	10-25-89	G89-10-539-1
LW-2	10-26-89	G89-10-538-6
LW-2	10-26-89	G89-10-537-6

(c) Sample not submitted to the laboratory due to pump malfunction.



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TABLE A-2
FIELD DUPLICATE SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>FIELD DUPLICATE SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>PRIMARY SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
MW-1400	10-24-89	MW-14	G89-10-487-3
BF-500	10-25-89	BF-5	G89-10-511-5
BF-1400	10-26-89	BF-14	G89-10-537-8
G-1200	10-27-89	G-12	G89-10-564-2
MW-2600	10-28-89	MW-26	G89-10-559-3
MW-2500*	11-16-89	MW-25	G89-11-297-2
LW-100*	11-17-89	LW-1	G89-11-323-2
BF-100	11-18-89	BF-1	G89-11-319-6

*Analytical data are located in Appendix E.



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TABLE A-3
FIELD BLANK SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>DATE</u>	<u>FIELD BLANK SAMPLE ID</u>	<u>SAMPLE PREPARATION LOCATION</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
10-24-89	WB-1	MW-14	G89-10-487-8
10-24-89	WB-2	G-7	G89-10-487-10
10-25-89	WB-1	BF-5	G89-10-511-8
10-25-89	WB-1	G-4	G89-10-511-8
10-26-89	WB-1	BF-14	G89-10-537-7
10-27-89	WB-1	G-12	G89-10-564-3
10-28-89	WB-1	MW-26	G89-10-559-4
10-28-89	WB-2	MW-3	G89-10-559-12
11-16-89*	WB-1*	MW-25	G89-11-297-3
11-17-89*	WB-1*	LW-1	G89-11-323-3
11-17-89	WB-2	LG-2	G89-11-319-8
11-17-89	WB-3	G-2	G89-11-319-9
11-18-89	WB-1	BF-1	G89-11-319-7

*Analytical data are located in Appendix E.



HARGIS + ASSOCIATES, INC.

TABLE A-4
TRIP BLANK SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>DATE SAMPLED</u>	<u>TRIP BLANK SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
10-24-89	TB-1	G89-10-487-9
10-25-89	TB-1	G89-10-511-10
10-26-89	TB-1	G89-10-537-9
10-27-89	TB-1	G89-10-564-15
10-28-89	TB-1	G89-10-559-13
11-16-89	TB-1*	G89-11-297-9
11-16-89	TB-2*	G89-11-297-10
11-17-89	TB-1*	G89-11-323-4
11-17-89	TB-2	G89-11-319-10
11-18-89	TB-1	G89-11-319-11

*Analytical data are located in Appendix E.



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TABLE A-5

**BROWN AND CALDWELL
LABORATORY QUALITY CONTROL
SAMPLE IDENTIFICATION**

<u>BROWN AND CALDWELL SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
Laboratory Control Standard	G89-10-486-2
Laboratory Blank	G89-10-486-3
MW-14 BC/QC Spike	G89-10-487-11
MW-14 BC/QC Duplicate Spike	G89-10-487-12
Laboratory Control Standard	G89-10-487-13
Laboratory Blank	G89-10-487-14
BF-5 BC/QC Spike	G89-10-511-11
BF-5 BC/QC Duplicate Spike	G89-10-511-12
LW-1 BC/QC Duplicate	G89-10-511-13
LW-1 BC/QC Spike	G89-10-511-14
Laboratory Control Standard	G89-10-511-15
Laboratory Blank	G89-10-511-16
BF-14 BC/QC Duplicate	G89-10-537-10
BF-14 BC/QC Spike	G89-10-537-11
BF-14 BC/QC Duplicate Spike	G89-10-537-12
Laboratory Blank	G89-10-537-13
Laboratory Control Standard	G89-10-537-14
BF-14 BC/QC Spike	G89-10-539-2
BF-14 BC/QC Duplicate Spike	G89-10-539-3
Laboratory Blank	G89-10-539-4
Laboratory Control Standard	G89-10-539-5
MW-26 BC/QC Duplicate	G89-10-559-14
Laboratory Control Standard	G89-10-559-17
Laboratory Blank	G89-10-559-18
MW-26 BC/QC Spike	G89-10-560-3
MW-26 BC/QC Duplicate Spike	G89-10-560-4
Laboratory Control Standard	G89-10-560-5
Laboratory Blank	G89-10-560-6



HARGIS + ASSOCIATES, INC.

TABLE A-5 (continued)
BROWN AND CALDWELL
LABORATORY QUALITY CONTROL
SAMPLE IDENTIFICATION
Page 2

<u>BROWN AND CALDWELL SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
G-12 BC/QC Duplicate	G89-10-564-9
G-12 BC/QC Spike	G89-10-564-10
G-12 BC/QC Duplicate Spike	G89-10-564-11
Laboratory Control Standard	G89-10-564-12
Laboratory Blank	G89-10-564-13
BF-1 BC/QC Spike	G89-11-319-12
BF-1 BC/QC Duplicate Spike	G89-11-319-13
Laboratory Control Standard	G89-11-319-14
Laboratory Blank	G89-11-319-15



HARGIS + ASSOCIATES, INC.

TABLE A-6
LABORATORY SPLIT SAMPLE IDENTIFICATION
VERSUS ANALYTICAL TECHNOLOGIES, INC. LOG NUMBER

<u>LABORATORY SPLIT SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>ANALYTICAL TECHNOLOGIES, INC. LOG NUMBER</u>
MW-14	10-24-89	91040001
BF-5	10-25-89	91040002
BF-14	10-26-89	91042401
G-12	10-27-89	90145001
MW-26	10-28-89	91046201
MW-25*	11-16-89	91123001
LW-1*	11-17-89	91125001
BF-1	11-18-89	91128301

*Analytical data are located in Appendix F.



HARGIS + ASSOCIATES, INC.

TABLE A-7
TRIP BLANK SAMPLE IDENTIFICATION VERSUS
ANALYTICAL TECHNOLOGIES, INC. LOG NUMBER

<u>DATE SAMPLED</u>	<u>TRIP BLANK SAMPLE ID</u>	<u>ANALYTICAL TECHNOLOGIES, INC LOG NUMBER</u>
11-25-89	TB-2	91040003



HARGIS + ASSOCIATES, INC.

TABLE A-8
ANALYTICAL TECHNOLOGIES, INC.
LABORATORY QUALITY CONTROL
SAMPLE IDENTIFICATION

<u>ANALYTICAL TECHNOLOGIES, INC. SAMPLE ID</u>	<u>ANALYTICAL METHOD</u>	<u>DATE ANALYZED</u>	<u>ANALYTICAL TECHNOLOGIES, INC. LAB NUMBER</u>
Reagent Blank	608	11-13-89	910400
Spike	608	11-13-89	91042401
Duplicate Spike	608	11-13-89	91042401
Reagent Blank	624	11-02-89	910400
Spike	624	11-02-89	91046201
Duplicate Spike	624	11-02-89	91046201
Reagent Blank	608	11-13-89	910424
Spike	608	11-13-89	91042401
Duplicate Spike	608	11-13-89	91042401
Reagent Blank	624	11-02-89	910424
Spike	624	11-02-89	91046201
Duplicate Spike	624	11-02-89	91046201
Reagent Blank	608	11-13-89	910450
Spike	608	11-13-89	91042401
Duplicate Spike	608	11-13-89	91042401
Reagent Blank	624	11-02-89	910450
Spike	624	11-02-89	91046201
Duplicate Spike	624	11-02-89	91046201
Reagent Blank	608	11-14-89	910462
Spike	608	11-14-89	91046201
Duplicate Spike	608	11-14-89	91046201
Reagent Blank	624	11-02-89	910462
Spike	624	11-02-89	91046201
Duplicate Spike	624	11-02-89	91046201



HARGIS + ASSOCIATES, INC.

TABLE A-8 (continued)
ANALYTICAL TECHNOLOGIES, INC.
LABORATORY QUALITY CONTROL
SAMPLE IDENTIFICATION
Page 2

<u>ANALYTICAL TECHNOLOGIES, INC.</u> <u>SAMPLE ID</u>	<u>ANALYTICAL METHOD</u>	<u>DATE ANALYZED</u>	<u>ANALYTICAL TECHNOLOGIES, INC.</u> <u>LAB NUMBER</u>
Reagent Blank	608	12-09-89	911283
Spike	608	12-09-89	911283
Duplicate Spike	608	12-09-89	911283
Reagent Blank	624	11-29-89	911283
Spike	624	11-29-89	91128301
Duplicate Spike	624	11-29-89	91128301



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Appendix B



HARGIS + ASSOCIATES, INC.

APPENDIX B

**BROWN AND CALDWELL RAW ANALYTICAL DATA FROM
OCTOBER-NOVEMBER 1989 QUARTERLY GROUNDWATER SAMPLING ROUND**



HARGIS + ASSOCIATES, INC.

APPENDIX B

TABLE OF CONTENTS

- REPORT LOG NO: G89-10-486
- REPORT LOG NO: G89-10-487
- REPORT LOG NO: G89-10-511
- REPORT LOG NO: G89-10-537
- REPORT LOG NO: G89-10-538
- REPORT LOG NO: G89-10-539
- REPORT LOG NO: G89-10-559
- REPORT LOG NO: G89-10-560
- REPORT LOG NO: G89-10-564
- REPORT LOG NO: G89-10-565
- REPORT LOG NO: G89-11-308
- REPORT LOG NO: G89-11-319



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

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(818) 247-5737

FAX: (818) 247-9797

LOG NO: G89-10-486

Received: 25 OCT 89
Reported: 09 NOV 89

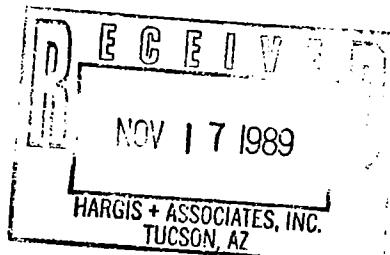
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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, LIQUID, NONAQUEOUS SAMPLES	DATE SAMPLED
10-486-1	MW-7	23 OCT 89
PARAMETER	10-486-1	
Organic Lead, mg/kg	330	
TPH and BTEX - Modified 8015		
Date Analyzed	11/06/89	
Dilution Factor, Times 1	10000	
Benzene, Percent	1.3	
Carbon Range, .	C6-C22	
Ethylbenzene, Percent	1.3	
Toluene, Percent	2.3	
Total Xylene Isomers, Percent	7.4	
Total Fuel Hydrocarbons, Percent	52	
Fuel Characterization, .	FUEL MIX	





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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-486-2	Laboratory Control Standard	
PARAMETER		10-486-2
Organic Lead, Percent	99	
TPH and BTEX - Modified 8015		
Date Analyzed	11/06/89	
Dilution Factor, Times 1	1	
Benzene, Percent	98	
Ethylbenzene, Percent	101	
Toluene, Percent	89	
Total Xylene Isomers, Percent	97	
Total Fuel Hydrocarbons, Percent	80	
Other TPH and BTEX - Modified 8015		---



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-486-3	Laboratory Blank	
PARAMETER		10-486-3
Organic Lead, mg/kg	<50	
TPH and BTEX - Modified 8015		
Date Analyzed	11/06/89	
Dilution Factor, Times 1	1	
Benzene, mg/kg	<0.2	
Ethylbenzene, mg/kg	<0.2	
Toluene, mg/kg	<0.2	
Total Xylene Isomers, mg/kg	<0.2	
Total Fuel Hydrocarbons, mg/kg	<1	
Other TPH and BTEX - Modified 8015	---	

Linda Black Fox JAE
Jeffrey A. Erion, Laboratory Manager



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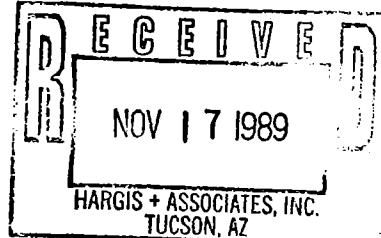
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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
10-487-1	MW-14					24 OCT 89
10-487-2	MW-15					24 OCT 89
10-487-3	MW-1400					24 OCT 89
10-487-4	BF-7					24 OCT 89
10-487-5	BF-8					24 OCT 89
PARAMETER		10-487-1	10-487-2	10-487-3	10-487-4	10-487-5
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		10/30/89	10/30/89	10/30/89	10/30/89	10/30/89
Date Analyzed		11/03/89	11/06/89	11/03/89	11/06/89	11/03/89
Dilution Factor, Times 1		1	10	1	10	1
BHC, alpha isomer, ug/L		0.49	0.88	0.36	2.5	<0.04
BHC, beta isomer, ug/L		<0.04	<0.4	0.52	<0.4	<0.04
BHC, delta isomer, ug/L		0.17	<0.4	0.13	<0.4	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	1.8	<0.04	<0.4	<0.04
Total BHC Isomers, ug/L		0.66	2.7	1.0	2.5	<0.04
Total DDT Metabolites, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04
p,p'-DDD, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04
p,p'-DDE, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04
p,p'-DDT, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04
o,p'-DDD, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04
o,p'-DDE, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04
o,p'-DDT, ug/L		<0.04	<0.4	<0.04	<0.4	<0.04





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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-487-1	10-487-2	10-487-3	10-487-4	10-487-5
VOCs Method 624 (SOP MS 00188)						
Date Extracted		11/03/89	11/06/89	11/03/89	11/03/89	11/03/89
Date Analyzed		11/03/89	11/06/89	11/03/89	11/03/89	11/03/89
Dilution Factor, Times 1		50	1000	50	2000	100
1,1,1-Trichloroethane, ug/L		<50	<1000	<50	<2000	<100
1,1,2,2-Tetrachloroethane, ug/L		<50	<1000	<50	<2000	<100
1,1,2-Trichloroethane, ug/L		<50	<1000	<50	<2000	<100
1,1-Dichloroethane, ug/L		<50	<1000	<50	<2000	<100
1,1-Dichloroethene, ug/L		<50	<1000	<50	<2000	<100
1,2-Dichloroethane, ug/L		370	<1000	360	<2000	<100
1,2-Dichlorobenzene, ug/L		<50	<1000	<50	<2000	<100
1,2-Dichloropropane, ug/L		<50	<1000	<50	<2000	<100
1,3-Dichlorobenzene, ug/L		<50	<1000	<50	<2000	<100
cis-1,3-Dichloropropene, ug/L		<50	<1000	<50	<2000	<100
1,4-Dichlorobenzene, ug/L		<50	<1000	<50	<2000	<100
2-Chloroethylvinylether, ug/L		<50	<1000	<50	<2000	<100
Acetone, ug/L		<500	<10000	<500	<20000	<1000
Acrolein, ug/L		<1000	<20000	<1000	<40000	<2000
Acrylonitrile, ug/L		<1000	<20000	<1000	<40000	<2000
Bromodichloromethane, ug/L		<50	<1000	<50	<2000	<100
Bromomethane, ug/L		<50	<1000	<50	<2000	<100
Benzene, ug/L		9500	<1000	6500	18000	<100
Chlorobenzene, ug/L		400	32000	340	66000	9000



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-487-1	10-487-2	10-487-3	10-487-4	10-487-5
Carbon Tetrachloride, ug/L	<50	<1000	<50	<2000	<100	
Chloroethane, ug/L	<50	<1000	<50	<2000	<100	
Bromoform, ug/L	<50	<1000	<50	<2000	<100	
Chloroform, ug/L	<50	<1000	<50	<2000	<100	
Chloromethane, ug/L	<100	<2000	<100	<4000	<200	
Dibromochloromethane, ug/L	<50	<1000	<50	<2000	<100	
Ethylbenzene, ug/L	1500	<1000	1000	4500	<100	
Methylene chloride, ug/L	<50	<1000	<50	<2000	<100	
Tetrachloroethylene, ug/L	<50	<1000	<50	<2000	<100	
Trichloroethene, ug/L	<50	<1000	<50	<2000	<100	
Trichlorofluoromethane, ug/L	<50	<1000	<50	<2000	<100	
Toluene, ug/L	75	<1000	62	<2000	<100	
Vinyl chloride, ug/L	<50	<1000	<50	<2000	<100	
trans-1,2-Dichloroethene, ug/L	<50	<1000	<50	<2000	<100	
trans-1,3-Dichloropropene, ug/L	<50	<1000	<50	<2000	<100	
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	

Semi-Quantified Results **

Xylenes, ug/L	1500	---	1100	---	---
---------------	------	-----	------	-----	-----

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
10-487-6	G-6					24 OCT 89
10-487-7	G-7					24 OCT 89
10-487-8	WB-1					24 OCT 89
10-487-9	TB-1					24 OCT 89
10-487-10	WB-2					24 OCT 89
PARAMETER		10-487-6	10-487-7	10-487-8	10-487-9	10-487-10
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		10/30/89	10/30/89	10/30/89	---	10/30/89
Date Analyzed		11/03/89	11/03/89	11/03/89	---	11/03/89
Dilution Factor, Times 1		1	1	1	---	1
BHC, alpha isomer, ug/L	<0.04	<0.04	<0.04	---	<0.04	
BHC, beta isomer, ug/L	<0.04	<0.04	<0.04	---	<0.04	
BHC, delta isomer, ug/L	<0.04	<0.04	<0.04	---	<0.04	
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.04	---	<0.04	
Total BHC Isomers, ug/L	<0.04	<0.04	<0.04	---	<0.04	
Total DDT Metabolites, ug/L	<0.04	0.19	<0.04	---	<0.04	
p,p'-DDD, ug/L	<0.04	0.13	<0.04	---	<0.04	
p,p'-DDE, ug/L	<0.04	<0.04	<0.04	---	<0.04	
p,p'-DDT, ug/L	<0.04	<0.04	<0.04	---	<0.04	
o,p'-DDD, ug/L	<0.04	0.06	<0.04	---	<0.04	
o,p'-DDE, ug/L	<0.04	<0.04	<0.04	---	<0.04	
o,p'-DDT, ug/L	<0.04	<0.04	<0.04	---	<0.04	



BROWN AND CALDWELL LABORATORIES

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-487-6	10-487-7	10-487-8	10-487-9	10-487-10
VOCs Method 624 (SOP MS 00188)						
Date Extracted		11/03/89	11/06/89	11/08/89	11/03/89	---
Date Analyzed		11/03/89	11/06/89	11/08/89	11/03/89	---
Dilution Factor, Times 1	100	1	1	1	1	---
1,1,1-Trichloroethane, ug/L	<100	<1	<1	<1	<1	---
1,1,2,2-Tetrachloroethane, ug/L	<100	<1	<1	<1	<1	---
1,1,2-Trichloroethane, ug/L	<100	<1	<1	<1	<1	---
1,1-Dichloroethane, ug/L	<100	<1	<1	<1	<1	---
1,1-Dichloroethene, ug/L	<100	<1	<1	<1	<1	---
1,2-Dichloroethane, ug/L	<100	<1	<1	<1	<1	---
1,2-Dichlorobenzene, ug/L	<100	<1	<1	<1	<1	---
1,2-Dichloropropane, ug/L	<100	<1	<1	<1	<1	---
1,3-Dichlorobenzene, ug/L	<100	<1	<1	<1	<1	---
cis-1,3-Dichloropropene, ug/L	<100	<1	<1	<1	<1	---
1,4-Dichlorobenzene, ug/L	<100	<1	<1	<1	<1	---
2-Chloroethylvinylether, ug/L	<100	<1	<1	<1	<1	---
Acetone, ug/L	<1000	<10	<10	<10	<10	---
Acrolein, ug/L	<2000	<20	<20	<20	<20	---
Acrylonitrile, ug/L	<2000	<20	<20	<20	<20	---
Bromodichloromethane, ug/L	<100	<1	<1	<1	<1	---
Bromomethane, ug/L	<100	<1	<1	<1	<1	---
Benzene, ug/L	<100	<1	<1	<1	<1	---
Chlorobenzene, ug/L	4600	71	<1	1	1	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-487-6	10-487-7	10-487-8	10-487-9	10-487-10
Carbon Tetrachloride, ug/L	<100	<1	<1	<1	<1	---
Chloroethane, ug/L	<100	<1	<1	<1	<1	---
Bromoform, ug/L	<100	<1	<1	<1	<1	---
Chloroform, ug/L	<100	<1	<1	<1	<1	---
Chloromethane, ug/L	<200	<2	<2	<2	<2	---
Dibromochloromethane, ug/L	<100	<1	<1	<1	<1	---
Ethylbenzene, ug/L	<100	<1	<1	<1	<1	---
Methylene chloride, ug/L	<100	<1	<1	<1	1	---
Tetrachloroethylene, ug/L	<100	<1	<1	<1	<1	---
Trichloroethene, ug/L	<100	<1	<1	<1	<1	---
Trichlorofluoromethane, ug/L	<100	<1	<1	<1	<1	---
Toluene, ug/L	<100	<1	<1	<1	<1	---
Vinyl chloride, ug/L	<100	<1	<1	<1	<1	---
trans-1,2-Dichloroethene, ug/L	<100	<1	<1	<1	<1	---
trans-1,3-Dichloropropene, ug/L	<100	<1	<1	<1	<1	---
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	---



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LOG NO: G89-10-487

Received: 25 OCT 89
Reported: 10 NOV 89

Ms. Lanae Raymond
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-487-11	MW-14 BC/QC SPK	24	OCT 89
10-487-12	MW-14 BC/QC DUP-SPK	24	OCT 89
PARAMETER		10-487-11	10-487-12
DDT/BHCs Method 608 (SOP GC 00588)			
Date Extracted		10/30/89	10/30/89
Date Analyzed		11/06/89	11/06/89
Dilution Factor, Times 1		1	1
BHC, gamma isomer (Lindane), Percent		140	94
p,p'-DDT, Percent		137	100
Other DDT/BHCs Method 608 (SOP GC 00588)		---	---
VOCs Method 624 (SOP MS 00188)			
Date Extracted		11/03/89	11/03/89
Date Analyzed		11/03/89	11/03/89
1,1-Dichloroethene, Percent		96	96
Benzene, Percent		100	93
Chlorobenzene, Percent		100	110
Trichloroethene, Percent		96	90
Toluene, Percent		92	82
Other VOCs Method 624 (SOP MS 00188)		---	---



BROWN AND CALDWELL LABORATORIES

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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-487-13	Laboratory Control Standard	
PARAMETER		10-487-13
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/30/89
Date Analyzed		11/06/89
Dilution Factor, Times 1		1
BHC, alpha isomer, Percent		115
BHC, beta isomer, Percent		52
BHC, delta isomer, Percent		128
BHC, gamma isomer (Lindane), Percent		108
p,p'-DDD, Percent		98
p,p'-DDE, Percent		118
p,p'-DDT, Percent		132
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-487-13	Laboratory Control Standard	
PARAMETER		10-487-13
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/03/89
Date Analyzed		11/03/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		84
1,1,2,2-Tetrachloroethane, Percent		100
1,1,2-Trichloroethane, Percent		96
1,1-Dichloroethane, Percent		94
1,1-Dichloroethene, Percent		96
1,2-Dichloroethane, Percent		88
1,2-Dichlorobenzene, Percent		98
1,2-Dichloropropane, Percent		85
1,3-Dichlorobenzene, Percent		81
cis-1,3-Dichloropropene, Percent		78
1,4-Dichlorobenzene, Percent		88
2-Chloroethylvinylether, Percent		130
Acetone, Percent		73
Acrolein, Percent		82
Acrylonitrile, Percent		94
Bromodichloromethane, Percent		94
Bromomethane, Percent		69
Benzene, Percent		86
Chlorobenzene, Percent		98
Carbon Tetrachloride, Percent		100
Chloroethane, Percent		82
Bromoform, Percent		91
Chloroform, Percent		97



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-487-13	Laboratory Control Standard	
PARAMETER		10-487-13
Chloromethane, Percent	74	
Dibromochloromethane, Percent	94	
Ethylbenzene, Percent	100	
Methylene chloride, Percent	130	
Tetrachloroethylene, Percent	87	
Trichloroethene, Percent	95	
Trichlorofluoromethane, Percent	66	
Toluene, Percent	93	
Vinyl chloride, Percent	60	
trans-1,2-Dichloroethene, Percent	89	
trans-1,3-Dichloropropene, Percent	85	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-487-14	Laboratory Blank	
PARAMETER		10-487-14
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/30/89
Date Analyzed		11/06/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-487-14	Laboratory Blank	10-487-14
PARAMETER		
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/03/89
Date Analyzed		11/03/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-487-14	Laboratory Blank	
PARAMETER		10-487-14
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethylene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Jeffrey A. Erion, Laboratory Manager



BROWN AND CALDWELL LABORATORIES

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801 WESTERN AVENUE, GLENDALE, CA 91201
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LOG NO: G89-10-511

AMENDED REPORT

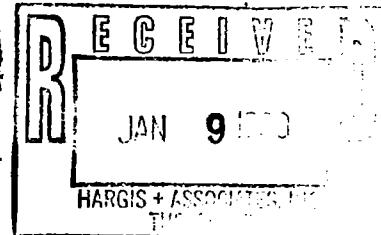
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
10-511-1	MW-12					25 OCT 89
10-511-2	MW-13					25 OCT 89
10-511-3	BF-5					25 OCT 89
10-511-4	BF-6					25 OCT 89
10-511-5	BF-500					25 OCT 89
PARAMETER		10-511-1	10-511-2	10-511-3	10-511-4	10-511-5
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		10/31/89	10/31/89	10/31/89	10/31/89	10/31/89
Date Analyzed		11/09/89	11/09/89	11/08/89	11/09/89	11/08/89
Dilution Factor, Times 1		1	5	1	2	1
BHC, alpha isomer, ug/L		<2	0.22	<0.04	0.09	<0.04
BHC, beta isomer, ug/L		<2	<0.2	<0.04	<0.08	<0.04
BHC, delta isomer, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
BHC, gamma isomer (Lindane), ug/L		0.13	<0.2	<0.04	0.21	<0.04
Total BHC Isomers, ug/L		0.13	0.22	<0.04	0.30	<0.04
Total DDT Metabolites, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
p,p'-DDD, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
p,p'-DDE, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
p,p'-DDT, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
o,p'-DDD, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
o,p'-DDE, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04
o,p'-DDT, ug/L		<0.04	<0.2	<0.04	<0.08	<0.04





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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-511-1	10-511-2	10-511-3	10-511-4	10-511-5
VOCs Method 624 (SOP MS 00188)						
Date Extracted	11/08/89	11/08/89	11/07/89	11/07/89	11/08/89	
Date Analyzed	11/08/89	11/08/89	11/07/89	11/07/89	11/08/89	
Dilution Factor, Times 1	500	1000	50	500	50	
1,1,1-Trichloroethane, ug/L	<500	<1000	<50	<500	<50	
1,1,2,2-Tetrachloroethane, ug/L	<500	<1000	<50	<500	<50	
1,1,2-Trichloroethane, ug/L	<500	<1000	<50	<500	<50	
1,1-Dichloroethane, ug/L	<500	<1000	<50	<500	<50	
1,1-Dichloroethene, ug/L	<500	<1000	<50	<500	<50	
1,2-Dichloroethane, ug/L	<500	<1000	<50	<500	<50	
1,2-Dichlorobenzene, ug/L	<500	<1000	<50	<500	<50	
1,2-Dichloropropane, ug/L	<500	<1000	<50	<500	<50	
1,3-Dichlorobenzene, ug/L	<500	<1000	<50	<500	<50	
cis-1,3-Dichloropropene, ug/L	<500	<1000	<50	<500	<50	
1,4-Dichlorobenzene, ug/L	<500	<1000	<50	<500	<50	
2-Chloroethylvinylether, ug/L	<500	<1000	<50	<500	<50	
Acetone, ug/L	<5000	<10000	<500	<5000	<500	
Acrolein, ug/L	<10000	<20000	<1000	<10000	<1000	
Acrylonitrile, ug/L	<10000	<20000	<1000	<10000	<1000	
Bromodichloromethane, ug/L	<500	<1000	<50	<500	<50	
Bromomethane, ug/L	<500	<1000	<50	<500	<50	
Benzene, ug/L	12000	24000	<50	<500	<50	
Chlorobenzene, ug/L	6000	3200	2400	29000	2200	



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-511-1	10-511-2	10-511-3	10-511-4	10-511-5
Carbon Tetrachloride, ug/L	<500	<1000	<50	<500	<50	<50
Chloroethane, ug/L	<500	<1000	<50	<500	<50	<50
Bromoform, ug/L	<500	<1000	<50	<500	<50	<50
Chloroform, ug/L	<500	1200	<50	<500	<50	<50
Chloromethane, ug/L	<1000	<2000	<100	<1000	<100	<100
Dibromochloromethane, ug/L	<500	<1000	<50	<500	<50	<50
Ethylbenzene, ug/L	1600	2200	<50	<500	<50	<50
Methylene chloride, ug/L	<500	<1000	<50	<500	<50	<50
Tetrachloroethene, ug/L	<500	<1000	<50	<500	<50	<50
Trichloroethene, ug/L	<500	<1000	<50	<500	<50	<50
Trichlorofluoromethane, ug/L	<500	<1000	<50	<500	<50	<50
Toluene, ug/L	10000	16000	<50	<500	<50	<50
Vinyl chloride, ug/L	<500	<1000	<50	<500	<50	<50
trans-1,2-Dichloroethene, ug/L	6100	<1000	<50	<500	<50	<50
trans-1,3-Dichloropropene, ug/L	<500	<1000	<50	<500	<50	<50
Other VOCs Method 624 (SOP MS 00188)---	---	---	---	---	---	---
Semi-Quantified Results **						
Total Xylene Isomers, ug/L	8700	9000	---	---	---	---

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED		
PARAMETER		10-511-6	10-511-7	10-511-8
10-511-6	G-4			25 OCT 89
10-511-7	G-5			25 OCT 89
10-511-8	WB-1			25 OCT 89
DDT/BHCs Method 608 (SOP GC 00588)				
Date Extracted		10/31/89	10/31/89	10/31/89
Date Analyzed		11/08/89	11/09/89	11/08/89
Dilution Factor, Times 1		1	1	1
BHC, alpha isomer, ug/L		<0.04	<0.04	<0.04
BHC, beta isomer, ug/L		<0.04	<0.04	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04	<0.04
Total BHC Isomers, ug/L		<0.04	<0.04	<0.04
Total DDT Metabolites, ug/L		<0.04	<0.04	<0.04
p,p'-DDD, ug/L		<0.04	<0.04	<0.04
p,p'-DDE, ug/L		<0.04	<0.04	<0.04
p,p'-DDT, ug/L		<0.04	<0.04	<0.04
o,p'-DDD, ug/L		<0.04	<0.04	<0.04
o,p'-DDE, ug/L		<0.04	<0.04	<0.04
o,p'-DDT, ug/L		<0.04	<0.04	<0.04



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED		
PARAMETER		10-511-6	10-511-7	10-511-8
10-511-6	G-4			25 OCT 89
10-511-7	G-5			25 OCT 89
10-511-8	WB-1			25 OCT 89
VOCs Method 624 (SOP MS 00188)				
Date Extracted		11/08/89	11/08/89	11/07/89
Date Analyzed		11/08/89	11/08/89	11/07/89
Dilution Factor, Times 1		100	50	1
1,1,1-Trichloroethane, ug/L		<100	<50	<1
1,1,2,2-Tetrachloroethane, ug/L		<100	<50	<1
1,1,2-Trichloroethane, ug/L		<100	<50	<1
1,1-Dichloroethane, ug/L		<100	<50	<1
1,1-Dichloroethene, ug/L		<100	<50	<1
1,2-Dichloroethane, ug/L		<100	<50	<1
1,2-Dichlorobenzene, ug/L		<100	<50	<1
1,2-Dichloropropane, ug/L		<100	<50	<1
1,3-Dichlorobenzene, ug/L		<100	<50	<1
cis-1,3-Dichloropropene, ug/L		<100	<50	<1
1,4-Dichlorobenzene, ug/L		<100	<50	<1
2-Chloroethylvinylether, ug/L		<100	<50	<1
Acetone, ug/L		<1000	<500	<10
Acrolein, ug/L		<2000	<1000	<20
Acrylonitrile, ug/L		<2000	<1000	<20
Bromodichloromethane, ug/L		<100	<50	<1
Bromomethane, ug/L		<100	<50	<1
Benzene, ug/L		<100	<50	<1
Chlorobenzene, ug/L		1800	1700	2
Carbon Tetrachloride, ug/L		<100	<50	<1
Chloroethane, ug/L		<100	<50	<1



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED		
PARAMETER		10-511-6	10-511-7	10-511-8
10-511-6	G-4			25 OCT 89
10-511-7	G-5			25 OCT 89
10-511-8	WB-1			25 OCT 89
Bromoform, ug/L		<100	<50	<1
Chloroform, ug/L		<100	<50	<1
Chloromethane, ug/L		<200	<100	<2
Dibromochloromethane, ug/L		<100	<50	<1
Ethylbenzene, ug/L		<100	<50	<1
Methylene chloride, ug/L		<100	<50	<1
Tetrachloroethene, ug/L		<100	<50	<1
Trichloroethene, ug/L		<100	<50	<1
Trichlorofluoromethane, ug/L		<100	<50	<1
Toluene, ug/L		<100	<50	<1
Vinyl chloride, ug/L		<100	<50	<1
trans-1,2-Dichloroethene, ug/L		<100	<50	<1
trans-1,3-Dichloropropene, ug/L		<100	<50	<1
Other VOCs Method 624 (SOP MS 00188)		---	---	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-511-9	LW-1	25 OCT 89
PARAMETER		10-511-9
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	<0.05	
Nitrate (as N), mg/L	<0.05	
Silica (as SiO ₂), mg/L	30	
Filterable Residue (TDS), mg/L	240	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	180	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	180	
Calcium (EDTA Titration), mg/L	33	
Chloride, mg/L	27	
Fluoride, mg/L	0.33	
Sulfate, mg/L	14	
Boron, mg/L	0.09	
Magnesium, mg/L	5.8	
Potassium, mg/L	3.5	
Sodium, mg/L	58	
Nitric Acid Digestion, Date	11/02/89	



BROWN AND CALDWELL LABORATORIES

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Received: 26 OCT 89
Reported: 10 NOV 89

Ms. Lanae Raymond
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10-511-9	LW-1	25 OCT 89
PARAMETER		10-511-9
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		0.046
p,p'-DDD, ug/L		0.046
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-511-10	TB-1	25 OCT 89
PARAMETER		10-511-10
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/07/89
Date Analyzed		11/07/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-511-10	TB-1	25 OCT 89
PARAMETER		10-511-10
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-511-11	BF-5 BC/QC SPK	25 OCT 89
PARAMETER		10-511-11
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, gamma isomer (Lindane), Percent		89
p,p'-DDT, Percent		91
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-511-12	BF-5 BC/QC DUP-SPK	25 OCT 89
PARAMETER		10-511-12
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, gamma isomer (Lindane), Percent		122
p,p'-DDT, Percent		116
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-511-13	LW-1 BC/QC DUP	25 OCT 89
PARAMETER		10-511-13
Nitrate Nitrogen		
Nitrate (as N03), mg/L	<0.05	
Nitrate (as N), mg/L	<0.05	
Silica (as SiO2), mg/L	30	
Filterable Residue (TDS), mg/L	240	
Alkalinity		
Carbonate Alk (as CaCO3), mg/L	<1	
Bicarbonate Alk (as CaCO3), mg/L	180	
Hydroxide Alk (as CaCO3), mg/L	<1	
Total Alkalinity (as CaCO3), mg/L	180	
Calcium (EDTA Titration), mg/L	33	
Chloride, mg/L	27	
Fluoride, mg/L	0.33	
Sulfate, mg/L	15	
Boron, mg/L	0.07	
Magnesium, mg/L	5.9	
Potassium, mg/L	3.5	
Sodium, mg/L	58	
Nitric Acid Digestion, Date	11/02/89	



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-511-14	LW-1 BC/QC SPK	25 OCT 89
PARAMETER		10-511-14
Nitrate Nitrogen		
Nitrate (as N03), Percent	86	
Nitrate (as N), Percent	86	
Silica (as Si02), Percent	97	
Filterable Residue (TDS), Percent	99	
Alkalinity		
Bicarbonate Alk (as CaCO ₃), Percent	99	
Total Alkalinity (as CaCO ₃), Percent	99	
Other Alkalinity	---	
Calcium (EDTA Titration), Percent	98	
Chloride, Percent	90	
Fluoride, Percent	94	
Sulfate, Percent	108	
Boron, Percent	76	
Magnesium, Percent	91	
Potassium, Percent	106	
Sodium, Percent	114	
Nitric Acid Digestion, Date	11/02/89	



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-511-15	Laboratory Control Standard	
PARAMETER		10-511-15
Nitrate Nitrogen		
Nitrate (as N03), Percent	100	
Nitrate (as N), Percent	100	
Silica (as Si02), Percent	89	
Filterable Residue (TDS), Percent	99	
Alkalinity		
Bicarbonate Alk (as CaC03), Percent	100	
Total Alkalinity (as CaC03), Percent	100	
Other Alkalinity	---	
Calcium (EDTA Titration), Percent	98	
Chloride, Percent	99	
Fluoride, Percent	92	
Sulfate, Percent	98	
Boron, Percent	100	
Magnesium, Percent	89	
Potassium, Percent	104	
Sodium, Percent	98	
Nitric Acid Digestion, Date		11/02/89



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-511-15	Laboratory Control Standard	
PARAMETER		10-511-15
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, alpha isomer, Percent		80
BHC, beta isomer, Percent		48
BHC, delta isomer, Percent		122
BHC, gamma isomer (Lindane), Percent		82
p,p'-DDD, Percent		112
p,p'-DDE, Percent		100
p,p'-DDT, Percent		88
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-511-15	Laboratory Control Standard	
PARAMETER		10-511-15
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/07/89
Date Analyzed		11/07/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		85
1,1,2,2-Tetrachloroethane, Percent		88
1,1,2-Trichloroethane, Percent		95
1,1-Dichloroethane, Percent		110
1,1-Dichloroethene, Percent		100
1,2-Dichloroethane, Percent		84
1,2-Dichlorobenzene, Percent		91
1,2-Dichloropropane, Percent		90
1,3-Dichlorobenzene, Percent		85
cis-1,3-Dichloropropene, Percent		87
1,4-Dichlorobenzene, Percent		91
2-Chloroethylvinylether, Percent		100
Acetone, Percent		91
Acrolein, Percent		73
Acrylonitrile, Percent		71
Bromodichloromethane, Percent		98
Bromomethane, Percent		56
Benzene, Percent		76
Chlorobenzene, Percent		110
Carbon Tetrachloride, Percent		110
Chloroethane, Percent		63
Bromoform, Percent		84
Chloroform, Percent		110



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-511-15	Laboratory Control Standard	
PARAMETER		10-511-15
Chloromethane, Percent	56	
Dibromochloromethane, Percent	99	
Ethylbenzene, Percent	110	
Methylene chloride, Percent	130	
Tetrachloroethene, Percent	98	
Trichloroethene, Percent	93	
Trichlorofluoromethane, Percent	89	
Toluene, Percent	91	
Vinyl chloride, Percent	40	
trans-1,2-Dichloroethene, Percent	81	
trans-1,3-Dichloropropene, Percent	90	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-511-16	Laboratory Blank	
PARAMETER		10-511-16
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	<0.05	
Nitrate (as N), mg/L	<0.01	
Silica (as SiO ₂), mg/L	<1	
Filterable Residue (TDS), mg/L	<10	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	<1	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	<10	
Calcium (EDTA Titration), mg/L	<1	
Chloride, mg/L	<0.5	
Fluoride, mg/L	<0.05	
Sulfate, mg/L	<2	
Boron, mg/L	<0.05	
Magnesium, mg/L	<0.02	
Potassium, mg/L	<0.5	
Sodium, mg/L	<0.1	
Nitric Acid Digestion, Date		11/02/89



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-511-16	Laboratory Blank	
PARAMETER		10-511-16
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-511-16	Laboratory Blank	
PARAMETER		10-511-16
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/07/89
Date Analyzed		11/07/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-511-16	Laboratory Blank	
PARAMETER		10-511-16
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Amended report; methylene chloride detection limit
corrected in sample G89-10-511-1.

12/29/89 -- L. Brack

Please note the 624 analysis for LW-1 was reported
on log number G89-10-539; as a rush analysis.

01/08/90. --J. Freemeyer.

Jeffrey A. Erion
Jeffrey A. Erion, Laboratory Manager



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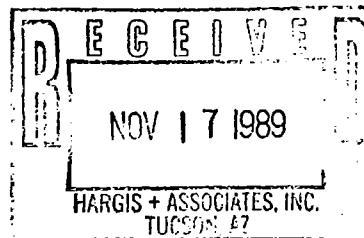
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-537-1	10-537-2	10-537-3	10-537-4	10-537-5
Nitrate Nitrogen						
Nitrate (as N03), mg/L	<0.05	2.0	120	<0.05	87	
Nitrate (as N), mg/L	<0.05	0.45	26	<0.05	20	
Silica (as SiO2), mg/L	26	25	27	27	25	
Filterable Residue (TDS), mg/L	350	450	1500	1200	1100	
Alkalinity						
Carbonate Alk (as CaCO3), mg/L	<1	<1	<1	<1	<1	
Bicarbonate Alk (as CaCO3), mg/L	190	160	320	400	390	
Hydroxide Alk (as CaCO3), mg/L	<1	<1	<1	<1	<1	
Total Alkalinity (as CaCO3), mg/L	190	160	320	400	390	
Calcium (EDTA Titration), mg/L	67	90	370	180	250	
Chloride, mg/L	35	110	540	150	320	
Fluoride, mg/L	0.36	0.30	0.25	0.25	0.36	
Sulfate, mg/L	65	65	69	300	86	
Boron, mg/L	0.07	0.07	0.15	0.11	0.08	
Magnesium, mg/L	13	16	69	36	57	
Potassium, mg/L	4.7	4.6	10	7.0	8.4	
Sodium, mg/L	58	56	130	200	160	
Nitric Acid Digestion, Date	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89	11/02/89





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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-537-1	10-537-2	10-537-3	10-537-4	10-537-5
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		10/31/89	10/31/89	10/31/89	10/31/89	10/31/89
Date Analyzed		11/08/89	11/08/89	11/08/89	11/09/89	11/08/89
Dilution Factor, Times 1		1	1	1	1	1
BHC, alpha isomer, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
BHC, beta isomer, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
BHC, delta isomer, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.04	0.066	<0.04	
Total BHC Isomers, ug/L	<0.04	<0.04	<0.04	0.066	<0.04	
Total DDT Metabolites, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	



BROWN AND CALDWELL LABORATORIES

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-537-6	10-537-7	10-537-8	10-537-9	10-537-10
Nitrate Nitrogen						
Nitrate (as NO ₃), mg/L	<0.05	---	---	---	---	2.0
Nitrate (as N), mg/L	<0.05	---	---	---	---	0.45
Silica (as SiO ₂), mg/L	24	---	---	---	---	25
Filterable Residue (TDS), mg/L	230	---	---	---	---	450
Alkalinity						
Carbonate Alk (as CaCO ₃), mg/L	<1	---	---	---	---	NA
Bicarbonate Alk (as CaCO ₃), mg/L	180	---	---	---	---	NA
Hydroxide Alk (as CaCO ₃), mg/L	<1	---	---	---	---	NA
Total Alkalinity (as CaCO ₃), mg/L	180	---	---	---	---	NA
Calcium (EDTA Titration), mg/L	46	---	---	---	---	90
Chloride, mg/L	22	---	---	---	---	110
Fluoride, mg/L	0.28	---	---	---	---	0.29
Sulfate, mg/L	2	---	---	---	---	67
Boron, mg/L	0.05	---	---	---	---	0.07
Magnesium, mg/L	6.9	---	---	---	---	16
Potassium, mg/L	3.3	---	---	---	---	4.6
Sodium, mg/L	45	---	---	---	---	56
Nitric Acid Digestion, Date	11/02/89	---	---	---	---	11/02/89



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-537-6	LW-2	26 OCT 89
10-537-7	WB-1	26 OCT 89
10-537-8	BF-1400	26 OCT 89
10-537-9	TB-1	26 OCT 89
10-537-10	BF-14 BC/QC DUP	26 OCT 89

PARAMETER	10-537-6	10-537-7	10-537-8	10-537-9	10-537-10
DDT/BHCs Method 608 (SOP GC 00588)					
Date Extracted	10/31/89	10/31/89	10/31/89	---	---
Date Analyzed	11/08/89	11/08/89	11/08/89	---	---
Dilution Factor, Times 1	1	1	1	---	---
BHC, alpha isomer, ug/L	<0.04	<0.04	<0.04	---	---
BHC, beta isomer, ug/L	<0.04	<0.04	<0.04	---	---
BHC, delta isomer, ug/L	<0.04	<0.04	<0.04	---	---
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.04	---	---
Total BHC Isomers, ug/L	<0.04	<0.04	<0.04	---	---
Total DDT Metabolites, ug/L	<0.04	<0.04	<0.04	---	---
p,p'-DDD, ug/L	<0.04	<0.04	<0.04	---	---
p,p'-DDE, ug/L	<0.04	<0.04	<0.04	---	---
p,p'-DDT, ug/L	<0.04	<0.04	<0.04	---	---
o,p'-DDD, ug/L	<0.04	<0.04	<0.04	---	---
o,p'-DDE, ug/L	<0.04	<0.04	<0.04	---	---
o,p'-DDT, ug/L	<0.04	<0.04	<0.04	---	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-537-6	10-537-7	10-537-8	10-537-9	10-537-10
VOCs Method 624 (SOP MS 00188)						
Date Extracted	---	11/08/89	11/08/89	11/08/89	11/08/89	---
Date Analyzed	---	11/08/89	11/08/89	11/08/89	11/08/89	---
Dilution Factor, Times 1	---	1	20	1	1	---
1,1,1-Trichloroethane, ug/L	---	<1	<20	<1	<1	---
1,1,2,2-Tetrachloroethane, ug/L	---	<1	<20	<1	<1	---
1,1,2-Trichloroethane, ug/L	---	<1	<20	<1	<1	---
1,1-Dichloroethane, ug/L	---	<1	<20	<1	<1	---
1,1-Dichloroethene, ug/L	---	<1	<20	<1	<1	---
1,2-Dichloroethane, ug/L	---	<1	<20	<1	<1	---
1,2-Dichlorobenzene, ug/L	---	<1	<20	<1	<1	---
1,2-Dichloropropane, ug/L	---	<1	<20	<1	<1	---
1,3-Dichlorobenzene, ug/L	---	<1	<20	<1	<1	---
cis-1,3-Dichloropropene, ug/L	---	<1	<20	<1	<1	---
1,4-Dichlorobenzene, ug/L	---	<1	<20	<1	<1	---
2-Chloroethylvinylether, ug/L	---	<1	<20	<1	<1	---
Acetone, ug/L	---	<10	<200	<10	<10	---
Acrolein, ug/L	---	<20	<400	<20	<20	---
Acrylonitrile, ug/L	---	<20	<400	<20	<20	---
Bromodichloromethane, ug/L	---	<1	<20	<1	<1	---
Bromomethane, ug/L	---	<1	<20	<1	<1	---
Benzene, ug/L	---	<1	<20	<1	<1	---
Chlorobenzene, ug/L	---	<1	1100	<1	<1	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-537-6	10-537-7	10-537-8	10-537-9	10-537-10
Carbon Tetrachloride, ug/L	---	<1	<20	<1	<1	---
Chloroethane, ug/L	---	<1	<20	<1	<1	---
Bromoform, ug/L	---	<1	<20	<1	<1	---
Chloroform, ug/L	---	<1	<20	<1	<1	---
Chloromethane, ug/L	---	<2	<40	<2	<2	---
Dibromochloromethane, ug/L	---	<1	<20	<1	<1	---
Ethylbenzene, ug/L	---	<1	<20	<1	<1	---
Methylene chloride, ug/L	---	<1	<20	<1	<1	---
Tetrachloroethene, ug/L	---	<1	<20	<1	<1	---
Trichloroethene, ug/L	---	<1	<20	<1	<1	---
Trichlorofluoromethane, ug/L	---	<1	<20	<1	<1	---
Toluene, ug/L	---	<1	<20	<1	<1	---
Vinyl chloride, ug/L	---	<1	<20	<1	<1	---
trans-1,2-Dichloroethene, ug/L	---	<1	<20	<1	<1	---
trans-1,3-Dichloropropene, ug/L	---	<1	<20	<1	<1	---
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	---



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-537-11	BF-14 BC/QC SPK	26 OCT 89
10-537-12	BF-14 BC/QC DUP-SPK	26 OCT 89
PARAMETER		10-537-11 10-537-12
Nitrate Nitrogen		
Nitrate (as N03), Percent	91	---
Nitrate (as N), Percent	91	---
Silica (as Si02), Percent	96	---
Filterable Residue (TDS), Percent	102	---
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	NA	---
Bicarbonate Alk (as CaCO ₃), mg/L	NA	---
Hydroxide Alk (as CaCO ₃), mg/L	NA	---
Total Alkalinity (as CaCO ₃), mg/L	NA	---
Calcium (EDTA Titration), Percent	97	---
Chloride, Percent	100	---
Fluoride, Percent	92	---
Sulfate, Percent	100	---
Boron, Percent	75	---
Magnesium, Percent	88	---
Potassium, Percent	98	---
Sodium, Percent	100	---
Nitric Acid Digestion, Date	11/02/89	---



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED	
10-537-11	BF-14 BC/QC SPK	26	OCT 89
10-537-12	BF-14 BC/QC DUP-SPK	26	OCT 89
PARAMETER		10-537-11	10-537-12
DDT/BHCs Method 608 (SOP GC 00588)			
Date Extracted		10/31/89	10/31/89
Date Analyzed		11/08/89	11/08/89
Dilution Factor, Times 1		1	1
BHC, alpha isomer, Percent		---	NA
BHC, beta isomer, Percent		---	NA
BHC, delta isomer, Percent		---	NA
BHC, gamma isomer (Lindane), Percent		100	NA
Total BHC Isomers, Percent		---	NA
Total DDT Metabolites, Percent		---	NA
p,p'-DDD, Percent		---	NA
p,p'-DDE, Percent		---	NA
p,p'-DDT, Percent		88	NA
o,p'-DDD, Percent		---	NA
o,p'-DDE, Percent		---	NA
o,p'-DDT, Percent		---	NA



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-537-13	Laboratory Blank	
PARAMETER		10-537-13
Nitrate Nitrogen		
Nitrate (as N03), mg/L	<0.05	
Nitrate (as N), mg/L	<0.01	
Silica (as Si02), mg/L	<1	
Filterable Residue (TDS), mg/L	<10	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	<1	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	<10	
Calcium (EDTA Titration), mg/L	<1	
Chloride, mg/L	<0.5	
Fluoride, mg/L	<0.05	
Sulfate, mg/L	<2	
Boron, mg/L	<0.05	
Magnesium, mg/L	<0.02	
Potassium, mg/L	<0.5	
Sodium, mg/L	<0.1	
Nitric Acid Digestion, Date		11/02/89



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-537-13	Laboratory Blank	
PARAMETER		10-537-13
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-537-14	Laboratory Control Standard	10-537-14
PARAMETER		
Nitrate Nitrogen		
Nitrate (as N03), Percent	100	
Nitrate (as N), Percent	100	
Silica (as SiO2), Percent	87	
Filterable Residue (TDS), mg/L	99	
Alkalinity		
Carbonate Alk (as CaCO3), Percent	100	
Bicarbonate Alk (as CaCO3), Percent	100	
Hydroxide Alk (as CaCO3), Percent	100	
Total Alkalinity (as CaCO3), Percent	100	
Calcium (EDTA Titration), mg/L	98	
Chloride, Percent	98	
Fluoride, Percent	88	
Sulfate, Percent	98	
Boron, Percent	100	
Magnesium, Percent	89	
Potassium, Percent	104	
Sodium, Percent	98	
Nitric Acid Digestion, Date	11/02/89	



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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-537-14	Laboratory Control Standard	
PARAMETER		10-537-14
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		10/31/89
Date Analyzed		11/08/89
Dilution Factor, Times 1		1
BHC, alpha isomer, Percent		80
BHC, beta isomer, Percent		48
BHC, delta isomer, Percent		122
BHC, gamma isomer (Lindane), Percent		82
p,p'-DDD, Percent		112
p,p'-DDE, Percent		100
p,p'-DDT, Percent		88
Other DDT/BHCs Method 608 (SOP GC 00588)		---
NA - Not Analyzed; insufficient sample.		
The 608 duplicate spike was broken during the concentrating step and there was insufficient sample to repeat it. L. Brack 11-16-89		

Jeffrey A. Erion, Laboratory Manager



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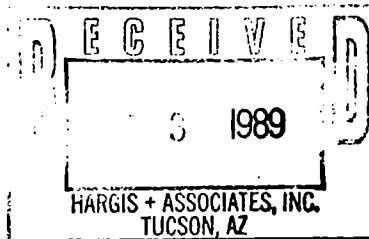
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-538-1	10-538-2	10-538-3	10-538-4	10-538-5
VOCs Method 624 (SOP MS 00188)						
Date Sampled		10/26/89	10/26/89	10/26/89	10/26/89	10/26/89
Date Extracted		10/28/89	10/28/89	10/28/89	10/28/89	10/28/89
Date Analyzed		10/28/89	10/28/89	10/28/89	10/28/89	10/28/89
Dilution Factor, Times 1		10	10	1	200	1
1,1,1-Trichloroethane, ug/L	<10	<10	<1	<200	<1	
1,1,2,2-Tetrachloroethane, ug/L	<10	<10	<1	<200	<1	
1,1,2-Trichloroethane, ug/L	<10	<10	<1	<200	<1	
1,1-Dichloroethane, ug/L	<10	<10	<1	<200	<1	
1,1-Dichloroethylene, ug/L	<10	<10	<1	<200	<1	
1,2-Dichloroethane, ug/L	<10	<10	<1	<200	<1	
1,2-Dichlorobenzene, ug/L	<10	<10	<1	<200	<1	
1,2-Dichloropropane, ug/L	<10	<10	<1	<200	<1	
1,3-Dichlorobenzene, ug/L	<10	<10	<1	<200	<1	
cis-1,3-Dichloropropene, ug/L	<10	<10	<1	<200	<1	
1,4-Dichlorobenzene, ug/L	<10	<10	<1	<200	<1	
2-Chloroethylvinylether, ug/L	<10	<10	<1	<200	<1	
Acetone, ug/L	<100	<100	<10	<2000	<10	
Acrolein, ug/L	<200	<200	<20	<4000	<20	
Acrylonitrile, ug/L	<200	<200	<20	<4000	<20	
Bromodichloromethane, ug/L	<10	<10	<1	<200	<1	
Bromomethane, ug/L	<10	<10	<1	<200	<1	
Benzene, ug/L	<10	<10	<1	<200	<1	



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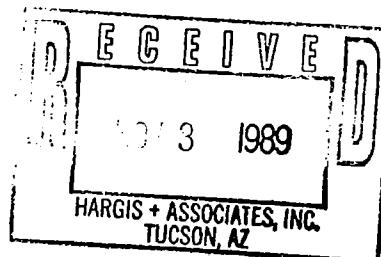
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10-538-1	G-13					26 OCT 89
10-538-2	BF-14					26 OCT 89
10-538-3	MW-23					26 OCT 89
10-538-4	BF-15					26 OCT 89
10-538-5	MW-24					26 OCT 89
PARAMETER		10-538-1	10-538-2	10-538-3	10-538-4	10-538-5
Chlorobenzene, ug/L		1400	1300	<1	37000	<1
Carbon Tetrachloride, ug/L		<10	<10	<1	<200	<1
Chloroethane, ug/L		<10	<10	<1	<200	<1
Bromoform, ug/L		<10	<10	<1	<200	<1
Chloroform, ug/L		<10	<10	<1	<200	4
Chloromethane, ug/L		<20	<20	<2	<400	<2
Dibromochloromethane, ug/L		<10	<10	<1	<200	<1
Ethylbenzene, ug/L		<10	<10	<1	<200	<1
Methylene Chloride, ug/L		<10	<10	<1	<200	<1
Tetrachloroethylene, ug/L		<10	<10	<1	<200	<1
Trichloroethylene, ug/L		<10	<10	<1	<200	<1
Trichlorofluoromethane, ug/L		<10	<10	<1	<200	<1
Toluene, ug/L		<10	<10	<1	<200	<1
Vinyl Chloride, ug/L		<10	<10	<1	<200	<1
trans-1,2-Dichloroethylene, ug/L		<10	<10	<1	<200	<1
trans-1,3-Dichloropropene, ug/L		<10	<10	<1	<200	<1





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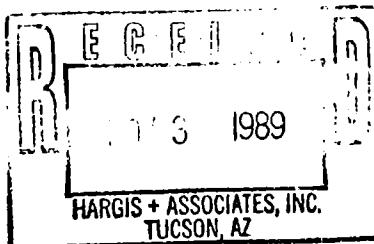
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-538-6	LW-2	26 OCT 89
PARAMETER		10-538-6
VOCs Method 624 (SOP MS 00188)		
Date Sampled		10/26/89
Date Extracted		10/28/89
Date Analyzed		10/28/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethylene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

FAX: (818) 247-9797
LOG NO: G89-10-538

Received: 27 OCT 89
Reported: 30 OCT 89

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

Project: 218.2

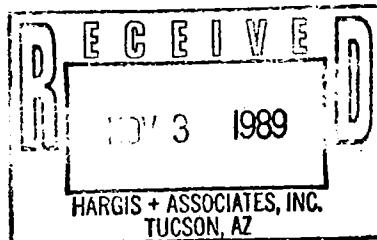
REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-538-6	LW-2	26 OCT 89
PARAMETER	10-538-6	
Chloroform, ug/L	<1	
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene Chloride, ug/L	<1	
Tetrachloroethylene, ug/L	<1	
Trichloroethylene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl Chloride, ug/L	<1	
trans-1,2-Dichloroethylene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	

Please note the batch QC was performed on sample
"LW-1" on order G89-10-539. 10/30/89.
--J. Freemyer.

[Signature]
Jeffrey A. Erion, Laboratory Manager





BROWN AND CALDWELL LABORATORIES

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

12-12-89

ANALYTICAL REPORT

FAX: (818) 247-9797

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REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-539-1	LW-1	25 OCT 89
PARAMETER		10-539-1
VOCs Method 624 (SOP MS 00188)		
Date Sampled		10/25/89
Date Extracted		10/28/89
Date Analyzed		10/28/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1



BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-539-1	LW-1	25 OCT 89
PARAMETER	10-539-1	
Chloroform, ug/L	<1	
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	



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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-539-2	BF-14 (10/26/89) BC/QC SPK	25 OCT 89
PARAMETER		10-539-2
VOCs Method 624 (SOP MS 00188)		
Date Sampled		10/25/89
Date Extracted		10/28/89
Date Analyzed		10/28/89
Dilution Factor, Times 1		1
1,1-Dichloroethene, Percent		128
Benzene, Percent		110
Chlorobenzene, Percent		96
Trichloroethene, Percent		120
Toluene, Percent		123
Other VOCs Method 624 (SOP MS 00188)		---



BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-539-3	BF-14 (10/26/89) BC/QC DUP-SPK	25 OCT 89
PARAMETER	10-539-3	
VOCs Method 624 (SOP MS 00188)		
Date Sampled	10/25/89	
Date Extracted	10/28/89	
Date Analyzed	10/28/89	
Dilution Factor, Times 1	1	
1,1-Dichloroethene, Percent	123	
Benzene, Percent	115	
Chlorobenzene, Percent	86	
Trichloroethene, Percent	123	
Toluene, Percent	130	
Other VOCs Method 624 (SOP MS 00188)	---	



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

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REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-539-4	Laboratory Blank	
PARAMETER		10-539-4
VOCs Method 624 (SOP MS 00188)		
Date Extracted		10/28/89
Date Analyzed		10/28/89
Dilution Factor, Times 1		
1,1,1-Trichloroethane, ug/L	<1	
1,1,2,2-Tetrachloroethane, ug/L	<1	
1,1,2-Trichloroethane, ug/L	<1	
1,1-Dichloroethane, ug/L	<1	
1,1-Dichloroethene, ug/L	<1	
1,2-Dichloroethane, ug/L	<1	
1,2-Dichlorobenzene, ug/L	<1	
1,2-Dichloropropane, ug/L	<1	
1,3-Dichlorobenzene, ug/L	<1	
cis-1,3-Dichloropropene, ug/L	<1	
1,4-Dichlorobenzene, ug/L	<1	
2-Chloroethylvinylether, ug/L	<1	
Acetone, ug/L	<10	
Acrolein, ug/L	<20	
Acrylonitrile, ug/L	<20	
Bromodichloromethane, ug/L	<1	
Bromomethane, ug/L	<1	
Benzene, ug/L	<1	
Chlorobenzene, ug/L	<1	
Carbon Tetrachloride, ug/L	<1	
Chloroethane, ug/L	<1	
Bromoform, ug/L	<1	
Chloroform, ug/L	<1	



BROWN AND CALDWELL LABORATORIES

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-539-4	Laboratory Blank	
PARAMETER		10-539-4
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737FAX: (818) 247-9797
LOG NO: G89-10-539Received: 27 OCT 89
Reported: 30 OCT 89

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 7

LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-539-5	Laboratory Control Standard	
PARAMETER		10-539-5
VOCs Method 624 (SOP MS 00188)		
Date Extracted		10/28/89
Date Analyzed		10/28/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		94
1,1,2,2-Tetrachloroethane, Percent		98
1,1,2-Trichloroethane, Percent		120
1,1-Dichloroethane, Percent		110
1,1-Dichloroethene, Percent		110
1,2-Dichloroethane, Percent		110
1,2-Dichlorobenzene, Percent		100
1,2-Dichloropropane, Percent		110
1,3-Dichlorobenzene, Percent		100
cis-1,3-Dichloropropene, Percent		89
1,4-Dichlorobenzene, Percent		110
2-Chloroethylvinylether, Percent		80
Acetone, Percent		120
Acrolein, Percent		130
Acrylonitrile, Percent		100
Bromodichloromethane, Percent		97
Bromomethane, Percent		120
Benzene, Percent		110
Chlorobenzene, Percent		110
Carbon Tetrachloride, Percent		110
Chloroethane, Percent		120
Bromoform, Percent		88
Chloroform, Percent		120



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

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Tucson, Arizona 85719

Project: 218.2

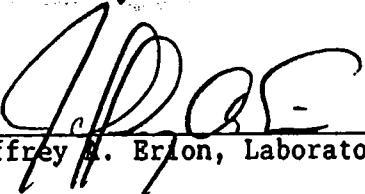
REPORT OF ANALYTICAL RESULTS

Page 8

LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-539-5	Laboratory Control Standard	
PARAMETER		10-539-5
Chloromethane, Percent	110	
Dibromochloromethane, Percent	100	
Ethylbenzene, Percent	100	
Methylene chloride, Percent	150	
Tetrachloroethene, Percent	110	
Trichloroethene, Percent	100	
Trichlorofluoromethane, Percent	99	
Toluene, Percent	110	
Vinyl chloride, Percent	120	
trans-1,2-Dichloroethene, Percent	110	
trans-1,3-Dichloropropene, Percent	83	
Other VOCs Method 624 (SOP MS 00188)	---	

Amended report; QC samples' identification
corrected for G89-10-539-2,3, 12/12/89.

--J. Freemyer.


Jeffrey A. Erion, Laboratory Manager



BROWN AND CALDWELL LABORATORIES

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

ANALYTICAL REPORT

FAX: (818) 247-9797

LOG NO: G89-10-559

Received: 30 OCT 89
Reported: 16 NOV 89

AMENDED REPORT

01/08/90Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

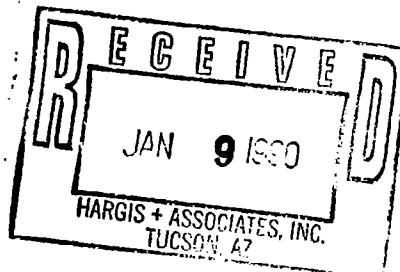
CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-1	MW-26	28 OCT 89
PARAMETER		10-559-1
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	24.9	
Nitrate (as N), mg/L	5.6	
Silica (as SiO ₂), mg/L	33	
Filterable Residue (TDS), mg/L	1100	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	620	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	620	
Calcium (EDTA Titration), mg/L	240	
Chloride, mg/L	290	
Fluoride, mg/L	0.26	
Sulfate, mg/L	60	
Boron, mg/L	0.26	
Magnesium, mg/L	57	
Potassium, mg/L	9.5	
Sodium, mg/L	180	
Nitric Acid Digestion, Date		11/06/89





BROWN AND CALDWELL LABORATORIES

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Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-1	MW-26	28 OCT 89
PARAMETER		10-559-1
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/02/89
Date Analyzed		11/12/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



BROWN AND CALDWELL LABORATORIES

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Ms. Lanae Raymond
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3385 N. Campbell Ave., Suite 121
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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-559-3	10-559-4	10-559-5	10-559-6	10-559-7
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		11/02/89	11/02/89	11/02/89	11/02/89	11/02/89
Date Analyzed		11/12/89	11/12/89	11/12/89	11/12/89	11/12/89
Dilution Factor, Times 1		1	1	20	1	1
BHC, alpha isomer, ug/L	<0.04	<0.04	<0.8	<2	<0.04	
BHC, beta isomer, ug/L	<0.04	<0.04	<0.8	0.18	<0.04	
BHC, delta isomer, ug/L	<0.04	<0.04	<0.8	0.41	<0.04	
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.8	0.29	<0.04	
Total BHC Isomers, ug/L	<0.04	<0.04	<0.8	0.88	<0.04	
Total DDT Metabolites, ug/L	<0.04	<0.04	<0.8	0.47	0.14	
p,p'-DDD, ug/L	<0.04	<0.04	<0.8	<2	<0.2	
p,p'-DDE, ug/L	<0.04	<0.04	<0.8	<0.04	<0.04	
p,p'-DDT, ug/L	<0.04	<0.04	<0.8	<2	0.14	
o,p'-DDD, ug/L	<0.04	<0.04	<0.8	0.47	<0.2	
o,p'-DDE, ug/L	<0.04	<0.04	<0.8	<0.04	<0.04	
o,p'-DDT, ug/L	<0.04	<0.04	<0.8	<2	<0.2	



BROWN AND CALDWELL LABORATORIES

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-559-3	10-559-4	10-559-5	10-559-6	10-559-7
VOCs Method 624 (SOP MS 00188)						
Date Extracted		11/09/89	11/09/89	11/11/89	11/11/89	11/11/89
Date Analyzed		11/09/89	11/09/89	11/11/89	11/11/89	11/11/89
Dilution Factor, Times 1		1	1	500	500	200
1,1,1-Trichloroethane, ug/L		1	<1	<500	<500	<200
1,1,2,2-Tetrachloroethane, ug/L		<1	<1	<500	<500	<200
1,1,2-Trichloroethane, ug/L		<1	<1	<500	<500	<200
1,1-Dichloroethane, ug/L		<1	<1	<500	<500	<200
1,1-Dichloroethene, ug/L		<1	<1	<500	<500	<200
1,2-Dichloroethane, ug/L		<1	<1	3300	<500	<200
1,2-Dichlorobenzene, ug/L		<1	<1	<500	<500	<200
1,2-Dichloropropane, ug/L		<1	<1	<500	<500	<200
1,3-Dichlorobenzene, ug/L		<1	<1	<500	<500	<200
cis-1,3-Dichloropropene, ug/L		<1	<1	<500	<500	<200
1,4-Dichlorobenzene, ug/L		<1	<1	<500	<500	<200
2-Chloroethylvinylether, ug/L		<1	<1	<500	<500	<200
Acetone, ug/L		<10	<10	<5000	<5000	<2000
Acrolein, ug/L		<20	<20	<10000	<10000	<4000
Acrylonitrile, ug/L		<20	<20	<10000	<10000	<4000
Bromodichloromethane, ug/L		<1	<1	<500	<500	<200
Bromomethane, ug/L		<1	<1	<500	<500	<200
Benzene, ug/L		<1	<1	30000	740	<200
Chlorobenzene, ug/L		7	3	<500	37000	13000



BROWN AND CALDWELL LABORATORIES

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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-559-3	10-559-4	10-559-5	10-559-6	10-559-7
10-559-3	MW-2600				28 OCT 89	
10-559-4	WB-1				28 OCT 89	
10-559-5	MW-7				28 OCT 89	
10-559-6	MW-5				28 OCT 89	
10-559-7	BF-3				28 OCT 89	
Carbon Tetrachloride, ug/L	<1	<1	<500	<500	<200	
Chloroethane, ug/L	<1	<1	<500	<500	<200	
Bromoform, ug/L	<1	<1	<500	<500	<200	
Chloroform, ug/L	<1	<1	890	20000	<200	
Chloromethane, ug/L	<2	<2	<1000	<1000	<400	
Dibromochloromethane, ug/L	<1	<1	<500	<500	<200	
Ethylbenzene, ug/L	<1	<1	2300	<500	<200	
Methylene chloride, ug/L	<1	<1	<500	<500	<200	
Tetrachloroethene, ug/L	1	<1	<500	1000	<200	
Trichloroethene, ug/L	<1	<1	<500	<500	<200	
Trichlorofluoromethane, ug/L	<1	<1	<500	<500	<200	
Toluene, ug/L	1	<1	38000	<500	<200	
Vinyl chloride, ug/L	<1	<1	<500	<500	<200	
trans-1,2-Dichloroethene, ug/L	<1	<1	<500	<500	<200	
trans-1,3-Dichloropropene, ug/L	<1	<1	<500	<500	<200	
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	---
Semi-Quantified Results **						
Total Xylenes, ug/L	---	---	12000	---	---	---

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

FAX: (818) 247-9797

LOG NO: G89-10-559

Received: 30 OCT 89
Reported: 16 NOV 89

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CC: Ms. Kathryn Parker

Project: 218.2

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-559-10	BF-2		28 OCT 89
10-559-11	G-3		28 OCT 89
PARAMETER		10-559-10	10-559-11
DDT/BHCs Method 608 (SOP GC 00588)			
Date Extracted		11/02/89	11/02/89
Date Analyzed		11/12/89	11/12/89
Dilution Factor, Times 1		1	1
BHC, alpha isomer, ug/L		<0.04	<0.04
BHC, beta isomer, ug/L		<0.04	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04
Total BHC Isomers, ug/L		<0.04	<0.04
Total DDT Metabolites, ug/L		<0.4	<0.04
p,p'-DDD, ug/L		<0.4	<0.04
p,p'-DDE, ug/L		<0.04	<0.04
p,p'-DDT, ug/L		<0.4	<0.04
o,p'-DDD, ug/L		<0.04	<0.04
o,p'-DDE, ug/L		<0.04	<0.04
o,p'-DDT, ug/L		<0.4	<0.04



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
PARAMETER		10-559-10	10-559-11
10-559-10	BF-2		28 OCT 89
10-559-11	G-3		28 OCT 89
VOCs Method 624 (SOP MS 00188)			
Date Extracted		11/11/89	11/11/89
Date Analyzed		11/11/89	11/11/89
Dilution Factor, Times 1		100	10
1,1,1-Trichloroethane, ug/L		<100	<10
1,1,2,2-Tetrachloroethane, ug/L		<100	<10
1,1,2-Trichloroethane, ug/L		<100	<10
1,1-Dichloroethane, ug/L		<100	<10
1,1-Dichloroethene, ug/L		<100	<10
1,2-Dichloroethane, ug/L		<100	<10
1,2-Dichlorobenzene, ug/L		<100	<10
1,2-Dichloropropane, ug/L		<100	<10
1,3-Dichlorobenzene, ug/L		<100	<10
cis-1,3-Dichloropropene, ug/L		<100	<10
1,4-Dichlorobenzene, ug/L		<100	<10
2-Chloroethylvinylether, ug/L		<100	<10
Acetone, ug/L		<1000	<100
Acrolein, ug/L		<2000	<200
Acrylonitrile, ug/L		<2000	<200
Bromodichloromethane, ug/L		<100	<10
Bromomethane, ug/L		<100	<10
Benzene, ug/L		<100	<10
Chlorobenzene, ug/L		3600	1500
Carbon Tetrachloride, ug/L		<100	<10
Chloroethane, ug/L		<100	<10
Bromoform, ug/L		<100	<10



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-559-10	BF-2		28 OCT 89
10-559-11	G-3		28 OCT 89
PARAMETER			
		10-559-10	10-559-11
Chloroform, ug/L		<100	<10
Chloromethane, ug/L		<200	<20
Dibromochloromethane, ug/L		<100	<10
Ethylbenzene, ug/L		<100	<10
Methylene chloride, ug/L		<100	<10
Tetrachloroethene, ug/L		<100	<10
Trichloroethene, ug/L		<100	<10
Trichlorofluoromethane, ug/L		<100	<10
Toluene, ug/L		<100	<10
Vinyl chloride, ug/L		<100	<10
trans-1,2-Dichloroethene, ug/L		<100	<10
trans-1,3-Dichloropropene, ug/L		<100	<10
Other VOCs Method 624 (SOP MS 00188)		---	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-14	MW-26 BC/QC DUP	28 OCT 89
PARAMETER	10-559-14	
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	25	
Nitrate (as N), mg/L	5.6	
Silica (as SiO ₂), mg/L	32	
Filterable Residue (TDS), mg/L	1000	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	620	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	620	
Calcium (EDTA Titration), mg/L	240	
Chloride, mg/L	390	
Fluoride, mg/L	0.27	
Sulfate, mg/L	62	
Boron, mg/L	0.22	
Magnesium, mg/L	59	
Potassium, mg/L	9.6	
Sodium, mg/L	180	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-559-17	Laboratory Control Standard	
PARAMETER		10-559-17
Nitrate Nitrogen		
Nitrate (as N03), Percent	99	
Nitrate (as N), Percent	100	
Silica (as Si02), Percent	99	
Filterable Residue (TDS), mg/L	100	
Alkalinity		
Carbonate Alk (as CaCO ₃), Percent	100	
Bicarbonate Alk (as CaCO ₃), Percent	100	
Hydroxide Alk (as CaCO ₃), Percent	100	
Total Alkalinity (as CaCO ₃), Percent	100	
Calcium (EDTA Titration), Percent	98	
Chloride, Percent	100	
Fluoride, Percent	95	
Sulfate, Percent	98	
Boron, Percent	100	
Magnesium, Percent	99	
Potassium, Percent	104	
Sodium, Percent	98	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-559-17	Laboratory Control Standard	
PARAMETER		10-559-17
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/02/89
Date Analyzed		11/12/89
Dilution Factor, Times 1		1
BHC, alpha isomer, Percent		46
BHC, beta isomer, Percent		44
BHC, delta isomer, Percent		89
BHC, gamma isomer (Lindane), Percent		54
p,p'-DDD, Percent		104
p,p'-DDE, Percent		85
p,p'-DDT, Percent		100
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-559-17	Laboratory Control Standard	
PARAMETER		10-559-17
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/11/89
Date Analyzed		11/11/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		79
1,1,2,2-Tetrachloroethane, Percent		87
1,1,2-Trichloroethane, Percent		108
1,1-Dichloroethane, Percent		93
1,1-Dichloroethene, Percent		95
1,2-Dichloroethane, Percent		91
1,2-Dichlorobenzene, Percent		103
1,2-Dichloropropane, Percent		102
1,3-Dichlorobenzene, Percent		103
cis-1,3-Dichloropropene, Percent		82
1,4-Dichlorobenzene, Percent		97
2-Chloroethylvinylether, Percent		81
Acetone, Percent		69
Acrolein, Percent		67
Acrylonitrile, Percent		84
Bromodichloromethane, Percent		99
Bromomethane, Percent		90
Benzene, Percent		91
Chlorobenzene, Percent		96
Carbon Tetrachloride, Percent		89
Chloroethane, Percent		113
Bromoform, Percent		78
Chloroform, Percent		98



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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
10-559-17	Laboratory Control Standard	
PARAMETER		10-559-17
Chloromethane, Percent	124	
Dibromochloromethane, Percent	99	
Ethylbenzene, Percent	111	
Methylene chloride, Percent	128	
Tetrachloroethene, Percent	110	
Trichloroethene, Percent	108	
Toluene, Percent	108	
Vinyl chloride, Percent	82	
trans-1,2-Dichloroethene, Percent	77	
trans-1,3-Dichloropropene, Percent	83	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-559-18	Laboratory Blank	
PARAMETER		10-559-18
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	<0.05	
Nitrate (as N), mg/L	<0.05	
Silica (as SiO ₂), mg/L	<1	
Filterable Residue (TDS), mg/L	<10	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	<1	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	<1	
Calcium (EDTA Titration), mg/L	<1	
Chloride, mg/L	<0.5	
Fluoride, mg/L	<0.05	
Sulfate, mg/L	<2	
Boron, mg/L	<0.05	
Magnesium, mg/L	<0.02	
Potassium, mg/L	<0.5	
Sodium, mg/L	<0.1	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-559-18	Laboratory Blank	10-559-18
PARAMETER		
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/02/89
Date Analyzed		11/12/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-559-18	Laboratory Blank	
PARAMETER		10-559-18
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		11/11/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1
Chloromethane, ug/L		<2



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-559-18	Laboratory Blank	10-559-18
PARAMETER		
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-13	TB-1	28 OCT 89
PARAMETER		10-559-13
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/09/89
Date Analyzed		11/09/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		3
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-13	TB-1	28 OCT 89
PARAMETER	10-559-13	
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-2	MW-25	28 OCT 89
PARAMETER	10-559-2	
Nitrate Nitrogen		
Nitrate (as N03), mg/L	0.35	
Nitrate (as N), mg/L	0.08	
Silica (as Si02), mg/L	28	
Filterable Residue (TDS), mg/L	1000	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	370	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	370	
Calcium (EDTA Titration), mg/L	210	
Chloride, mg/L	150	
Fluoride, mg/L	0.26	
Sulfate, mg/L	240	
Boron, mg/L	0.17	
Magnesium, mg/L	45	
Potassium, mg/L	6.6	
Sodium, mg/L	110	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-2	MW-25	28 OCT 89
PARAMETER	10-559-2	
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted	11/02/89	
Date Analyzed	11/12/89	
Dilution Factor, Times 1	1	
BHC, alpha isomer, ug/L	<0.4	
BHC, beta isomer, ug/L	<0.04	
BHC, delta isomer, ug/L	<0.04	
BHC, gamma isomer (Lindane), ug/L	0.08	
Total BHC Isomers, ug/L	0.08	
Total DDT Metabolites, ug/L	<0.04	
p,p'-DDD, ug/L	<0.04	
p,p'-DDE, ug/L	<0.04	
p,p'-DDT, ug/L	<0.04	
o,p'-DDD, ug/L	<0.04	
o,p'-DDE, ug/L	<0.04	
o,p'-DDT, ug/L	<0.04	



BROWN AND CALDWELL LABORATORIES

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

ANALYTICAL REPORT

FAX: (818) 247-9797

LOG NO: G89-10-559

Received: 30 OCT 89
Reported: 16 NOV 89

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-559-12	WB-2	28 OCT 89
PARAMETER	10-559-12	
<hr/>		
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/02/89
Date Analyzed		11/13/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04
<hr/>		



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-559-8	MW-3		28 OCT 89
10-559-9	BF-4		28 OCT 89
PARAMETER		10-559-8	10-559-9
DDT/BHCs Method 608 (SOP GC 00588)			
Date Extracted		11/02/89	11/02/89
Date Analyzed		11/12/89	11/12/89
Dilution Factor, Times 1		1	1
BHC, alpha isomer, ug/L		<0.04	<0.4
BHC, beta isomer, ug/L		<0.04	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04
Total BHC Isomers, ug/L		<0.04	<0.04
Total DDT Metabolites, ug/L		0.07	0.85
p,p'-DDD, ug/L		0.07	<0.4
p,p'-DDE, ug/L		<0.04	<0.04
p,p'-DDT, ug/L		<0.04	<0.4
o,p'-DDD, ug/L		<0.04	0.85
o,p'-DDE, ug/L		<0.04	<0.04
o,p'-DDT, ug/L		<0.04	<0.4



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-559-8	MW-3		28 OCT 89
10-559-9	BF-4		28 OCT 89
PARAMETER		10-559-8	10-559-9
VOCs Method 624 (SOP MS 00188)			
Date Extracted		11/13/89	11/13/89
Date Analyzed		11/13/89	11/13/89
Dilution Factor, Times 1		50	500
1,1,1-Trichloroethane, ug/L		<50	<500
1,1,2,2-Tetrachloroethane, ug/L		<50	<500
1,1,2-Trichloroethane, ug/L		<50	<500
1,1-Dichloroethane, ug/L		<50	<500
1,1-Dichloroethene, ug/L		<50	<500
1,2-Dichloroethane, ug/L		<50	<500
1,2-Dichlorobenzene, ug/L		<50	<500
1,2-Dichloropropane, ug/L		<50	<500
1,3-Dichlorobenzene, ug/L		<50	<500
cis-1,3-Dichloropropene, ug/L		<50	<500
1,4-Dichlorobenzene, ug/L		<50	<500
2-Chloroethylvinylether, ug/L		<50	<500
Acetone, ug/L		<500	<5000
Acrolein, ug/L		<1000	<10000
Acrylonitrile, ug/L		<1000	<10000
Bromodichloromethane, ug/L		<50	<500
Bromomethane, ug/L		<50	<500
Benzene, ug/L		<50	<500
Chlorobenzene, ug/L		<50	29000
Carbon Tetrachloride, ug/L		<50	<500
Chloroethane, ug/L		<50	<500
Bromoform, ug/L		<50	<500



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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
PARAMETER		10-559-8	10-559-9
10-559-8	MW-3		28 OCT 89
10-559-9	BF-4		28 OCT 89
Chloroform, ug/L		410	<500
Chloromethane, ug/L		<100	<1000
Dibromochloromethane, ug/L		<50	<500
Ethylbenzene, ug/L		<50	<500
Methylene chloride, ug/L		<50	<500
Tetrachloroethene, ug/L		<50	<500
Trichloroethene, ug/L		<50	<500
Trichlorofluoromethane, ug/L		<50	<500
Toluene, ug/L		<50	<500
Vinyl chloride, ug/L		<50	<500
trans-1,2-Dichloroethene, ug/L		<50	<500
trans-1,3-Dichloropropene, ug/L		<50	<500
Other VOCs Method 624 (SOP MS 00188)		---	---



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Samples MW-3 and BF-4 were analyzed by EPA Method 624 after the required fourteen day holding time had expired.

Amended report 11/21/89 due to deletion of the 624 results for WB-2. 624 was not requested by the client. L. Brack

The 624 data for MW-26 was reported on G89-11-560. This data has been removed from this laboratory report. 12/20/89. --J. Freemyer.

The 624 data for MW-26 and MW-25 have been removed from this laboratory report. 01/03/90 -- L. Brack

Amended report; 608 analysis date for WB-2 corrected. 01/08/90. --J. Freemyer.

Jeffrey A. Erion
Jeffrey A. Erion, Laboratory Manager



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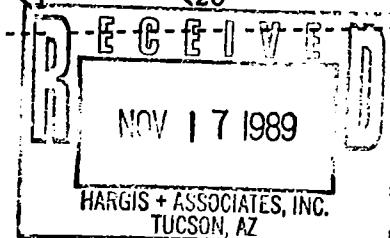
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REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-560-1	MW-26	28 OCT 89
10-560-2	MW-25	28 OCT 89
PARAMETER		10-560-1 10-560-2
VOCs Method 624 (SOP MS 00188)		
Date Extracted	10/31/89	10/31/89
Date Analyzed	10/31/89	10/31/89
Dilution Factor, Times 1	1	20
1,1,1-Trichloroethane, ug/L	<1	<20
1,1,2,2-Tetrachloroethane, ug/L	<1	<20
1,1,2-Trichloroethane, ug/L	<1	<20
1,1-Dichloroethane, ug/L	<1	<20
1,1-Dichloroethene, ug/L	<1	<20
1,2-Dichloroethane, ug/L	<1	<20
1,2-Dichlorobenzene, ug/L	<1	<20
1,2-Dichloropropane, ug/L	<1	<20
1,3-Dichlorobenzene, ug/L	<1	<20
cis-1,3-Dichloropropene, ug/L	<1	<20
1,4-Dichlorobenzene, ug/L	<1	<20
2-Chloroethylvinylether, ug/L	<10	<200
Acetone, ug/L	<20	<400
Acrolein, ug/L	<20	<400
Acrylonitrile, ug/L	<20	<20
Bromodichloromethane, ug/L	<1	<20
Bromomethane, ug/L	<1	<20
Benzene, ug/L	<1	2200
Chlorobenzene, ug/L	4	990
Carbon Tetrachloride, ug/L	<1	<20
Chloroethane, ug/L	<1	<20
Bromoform, ug/L	<1	<20





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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-560-1	MW-26	28 OCT 89
10-560-2	MW-25	28 OCT 89
PARAMETER	10-560-1	10-560-2
Chloroform, ug/L	<1	510
Chloromethane, ug/L	<2	<40
Dibromochloromethane, ug/L	<1	<20
Ethylbenzene, ug/L	<1	58
Methylene chloride, ug/L	<1	<20
Tetrachloroethylene, ug/L	<1	<20
Trichloroethene, ug/L	<1	<20
Trichlorofluoromethane, ug/L	<1	<20
Toluene, ug/L	<1	1900
Vinyl chloride, ug/L	<1	<20
trans-1,2-Dichloroethene, ug/L	<1	<20
trans-1,3-Dichloropropene, ug/L	<1	<20
Other VOCs Method 624 (SOP MS 00188)	---	---
Semi-Quantified Results **		
2-Methylbutane, ug/L	---	800
A 2nd C5H10 Hydrocarbon, ug/L	---	600
A C5H10 Hydrocarbon, ug/L	---	700
Butane, ug/L	---	1000
Cyclohexane, ug/L	---	400
Methylcyclopentane, ug/L	---	800
Trimethylbenzene, ug/L	---	200
Total Xylenes, ug/L	---	1800

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.



BROWN AND CALDWELL LABORATORIES

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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED	
10-560-3	MW-26 BC/QC SPK	28	OCT 89
10-560-4	MW-26 BC/QC DUP-SPK	28	OCT 89
PARAMETER		10-560-3	10-560-4
VOCs Method 624 (SOP MS 00188)			
Date Extracted		10/31/89	10/31/89
Date Analyzed		10/31/89	10/31/89
Dilution Factor, Times 1		1	1
1,1-Dichloroethene, Percent		105	106
Benzene, Percent		100	97
Chlorobenzene, Percent		100	100
Trichloroethene, Percent		115	111
Toluene, Percent		100	97
Other VOCs Method 624 (SOP MS 00188)		---	---



BROWN AND CALDWELL LABORATORIES

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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-560-4	MW-26 BC/QC DUP-SPK	28 OCT 89
PARAMETER		10-560-4
VOCs Method 624 (SOP MS 00188)		
Date Extracted		10/31/89
Date Analyzed		10/31/89
Dilution Factor, Times 1		1
1,1-Dichloroethene, Percent		106
Benzene, Percent		97
Chlorobenzene, Percent		100
Trichloroethene, Percent		111
Toluene, Percent		97
Other VOCs Method 624 (SOP MS 00188)		---



BROWN AND CALDWELL LABORATORIES

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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-560-5	Laboratory Control Standard	
PARAMETER		10-560-5
VOCs Method 624 (SOP MS 00188)		
Date Extracted		10/31/89
Date Analyzed		10/31/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		93
1,1,2,2-Tetrachloroethane, Percent		110
1,1,2-Trichloroethane, Percent		110
1,1-Dichloroethane, Percent		100
1,1-Dichloroethene, Percent		100
1,2-Dichloroethane, Percent		95
1,2-Dichlorobenzene, Percent		100
1,2-Dichloropropane, Percent		95
1,3-Dichlorobenzene, Percent		99
cis-1,3-Dichloropropene, Percent		80
1,4-Dichlorobenzene, Percent		100
2-Chloroethylvinylether, Percent		75
Acetone, Percent		130
Acrolein, Percent		110
Acrylonitrile, Percent		120
Bromodichloromethane, Percent		90
Bromomethane, Percent		120
Benzene, Percent		95
Chlorobenzene, Percent		100
Carbon Tetrachloride, Percent		100
Chloroethane, Percent		110
Bromoform, Percent		99
Chloroform, Percent		110



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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-560-5	Laboratory Control Standard	
PARAMETER		10-560-5
Chloromethane, Percent	93	
Dibromochloromethane, Percent	96	
Ethylbenzene, Percent	100	
Methylene chloride, Percent	150	
Tetrachloroethylene, Percent	99	
Trichloroethene, Percent	96	
Trichlorofluoromethane, Percent	94	
Toluene, Percent	87	
Vinyl chloride, Percent	100	
trans-1,2-Dichloroethene, Percent	97	
trans-1,3-Dichloropropene, Percent	88	
Other VOCs Method 624 (SOP MS 00188)	---	



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-560-6	Laboratory Blank	10-560-6
PARAMETER		
VOCs Method 624 (SOP MS 00188)		
Date Extracted		10/31/89
Date Analyzed		10/31/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-560-6	Laboratory Blank	10-560-6
PARAMETER		
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethylene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Rinder Brack for JAE
Jeffrey A. Erion, Laboratory Manager

Analytical Report

received
2-23-9099

AMENDED REPORT

2/20/90

LOG NO: G89-10-564

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-564-1	G-12	27 OCT 89
PARAMETER		10-564-1
Nitrate Nitrogen		
Nitrate (as N03), mg/L	<0.05	
Nitrate (as N), mg/L	<0.02	
Silica (as Si02), mg/L	28	
Filterable Residue (TDS), mg/L	510	
Alkalinity		
Carbonate Alk (as CaCO3), mg/L	<1	
Bicarbonate Alk (as CaCO3), mg/L	210	
Hydroxide Alk (as CaCO3), mg/L	<1	
Total Alkalinity (as CaCO3), mg/L	210	
Calcium (EDTA Titration), mg/L	85	
Chloride, mg/L	79	
Fluoride, mg/L	0.27	
Sulfate, mg/L	99	
Boron, mg/L	0.06	
Magnesium, mg/L	19	
Potassium, mg/L	5.2	
Sodium, mg/L	80	
Nitric Acid Digestion, Date	11/06/89	

Analytical Report

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-564-1	G-12	27 OCT 89
PARAMETER	10-564-1	
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/01/89
Date Analyzed		11/09/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	10-564-2	10-564-3	10-564-4	10-564-5	10-564-6	
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	
Date Analyzed	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	
Dilution Factor, Times 1	1	1	1	1	1	
BHC, alpha isomer, ug/L	<0.04	<0.04	<0.04	<0.4	<0.2	
BHC, beta isomer, ug/L	<0.04	<0.04	<0.04	<0.4	<0.04	
BHC, delta isomer, ug/L	<0.04	<0.04	<0.04	<0.4	<0.04	
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.04	<0.4	<0.04	
Total BHC Isomers, ug/L	<0.04	<0.04	<0.04	<0.4	<0.04	
Total DDT Metabolites, ug/L	<0.04	<0.04	<0.04	<0.4	<0.04	
p,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.4	<0.04	
o,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	



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Received: 30 OCT 89

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-564-2	10-564-3	10-564-4	10-564-5	10-564-6
10-564-2	G-1200				27 OCT 89	
10-564-3	WB-1				27 OCT 89	
10-564-4	MW-8				27 OCT 89	
10-564-5	MW-9				27 OCT 89	
10-564-6	MW-10				27 OCT 89	
VOCs Method 624 (SOP MS 00188)						
Date Extracted		11/08/89	11/08/89	11/10/89	11/10/89	11/08/89
Date Analyzed		11/08/89	11/08/89	11/10/89	11/10/89	11/08/89
Dilution Factor, Times 1		50	1	1	3000	100
1,1,1-Trichloroethane, ug/L		<50	<1	<1	<3000	<100
1,1,2,2-Tetrachloroethane, ug/L		<50	<1	<1	<3000	<100
1,1,2-Trichloroethane, ug/L		<50	<1	<1	<3000	<100
1,1-Dichloroethane, ug/L		<50	<1	<1	<3000	<100
1,1-Dichloroethene, ug/L		<50	<1	<1	<3000	<100
1,2-Dichloroethane, ug/L		<50	<1	<1	<3000	<100
1,2-Dichlorobenzene, ug/L		<50	<1	<1	<3000	<100
1,2-Dichloropropane, ug/L		<50	<1	<1	<3000	<100
1,3-Dichlorobenzene, ug/L		<50	<1	<1	<3000	<100
cis-1,3-Dichloropropene, ug/L		<50	<1	<1	<3000	<100
1,4-Dichlorobenzene, ug/L		<50	<1	<1	<3000	<100
2-Chloroethylvinylether, ug/L		<50	<1	<1	<3000	<100
Acetone, ug/L		<500	<10	<10	<30000	<1000
Acrolein, ug/L		<1000	<20	<20	<50000	<2000
Acrylonitrile, ug/L		<1000	<20	<20	<50000	<2000
Bromodichloromethane, ug/L		<50	<1	<1	<3000	<100
Bromomethane, ug/L		<50	<1	<1	<3000	<100
Benzene, ug/L		<50	<1	<1	<3000	<100
Chlorobenzene, ug/L		1200	<1	<1	180000	790



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		10-564-2	10-564-3	10-564-4	10-564-5	10-564-6
10-564-2	G-1200				27 OCT 89	
10-564-3	WB-1				27 OCT 89	
10-564-4	MW-8				27 OCT 89	
10-564-5	MW-9				27 OCT 89	
10-564-6	MW-10				27 OCT 89	
Carbon Tetrachloride, ug/L	<50	<1	2	<3000	<100	
Chloroethane, ug/L	<50	<1	<1	<3000	<100	
Bromoform, ug/L	<50	<1	<1	<3000	<100	
Chloroform, ug/L	<50	<1	<1	85000	<100	
Chloromethane, ug/L	<100	<2	<2	<5000	<200	
Dibromochloromethane, ug/L	<50	<1	<1	<3000	<100	
Ethylbenzene, ug/L	<50	<1	<1	<3000	<100	
Methylene chloride, ug/L	<50	<1	<1	<3000	<100	
Tetrachloroethene, ug/L	<50	<1	<1	<3000	<100	
Trichloroethene, ug/L	<50	<1	<1	<3000	<100	
Trichlorofluoromethane, ug/L	<50	<1	<1	<3000	<100	
Toluene, ug/L	<50	<1	2	<3000	<100	
Vinyl chloride, ug/L	<50	<1	<1	<3000	<100	
trans-1,2-Dichloroethene, ug/L	<50	<1	<1	<3000	<100	
trans-1,3-Dichloropropene, ug/L	<50	<1	<1	<3000	<100	
Other VOCs Method 624 (SOP MS 00188)---	---	---	---	---	---	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-564-7	MW-11		27 OCT 89
10-564-8	MW-6		27 OCT 89
PARAMETER		10-564-7	10-564-8
DDT/BHCs Method 608 (SOP GC 00588)		11/01/89	11/01/89
Date Extracted		11/10/89	11/10/89
Date Analyzed			
Dilution Factor, Times 1		20	10
BHC, alpha isomer, ug/L		5.8	0.7
BHC, beta isomer, ug/L		5.7	<0.4
BHC, delta isomer, ug/L		2.0	0.4
BHC, gamma isomer (Lindane), ug/L		13	1.0
Total BHC Isomers, ug/L		27	2.1
Total DDT Metabolites, ug/L		<0.8	<0.4
p,p'-DDD, ug/L		<0.8	<0.04
p,p'-DDE, ug/L		<0.8	<0.04
p,p'-DDT, ug/L		<0.8	<0.4
o,p'-DDD, ug/L		<0.8	<0.04
o,p'-DDE, ug/L		<0.8	<0.04
o,p'-DDT, ug/L		<0.8	<0.04



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-564-7	MW-11	27 OCT 89	
10-564-8	MW-6	27 OCT 89	
PARAMETER		10-564-7	10-564-8
VOCs Method 624 (SOP MS 00188)		11/10/89	11/08/89
Date Extracted		11/10/89	11/08/89
Date Analyzed		500	100
Dilution Factor, Times 1		<500	<100
1,1,1-Trichloroethane, ug/L		<500	<100
1,1,2,2-Tetrachloroethane, ug/L		<500	<100
1,1,2-Trichloroethane, ug/L		<500	<100
1,1-Dichloroethane, ug/L		<500	<100
1,1-Dichloroethene, ug/L		<500	<100
1,2-Dichloroethane, ug/L		<500	<100
1,2-Dichlorobenzene, ug/L		<500	<100
1,2-Dichloropropane, ug/L		<500	<100
1,3-Dichlorobenzene, ug/L		<500	<100
cis-1,3-Dichloropropene, ug/L		<500	110
1,4-Dichlorobenzene, ug/L		<500	<100
2-Chloroethylvinylether, ug/L		<5000	<1000
Acetone, ug/L		<10000	<2000
Acrolein, ug/L		<10000	<2000
Acrylonitrile, ug/L		<500	<100
Bromodichloromethane, ug/L		<500	<100
Bromomethane, ug/L		3100	760
Benzene, ug/L		34000	6400
Chlorobenzene, ug/L		<500	570
Carbon Tetrachloride, ug/L		<500	<100
Chloroethane, ug/L		<500	<100
Bromoform, ug/L			



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
10-564-7	MW-11		27 OCT 89
10-564-8	MW-6		27 OCT 89
PARAMETER		10-564-7	10-564-8
Chloroform, ug/L		2800	4400
Chloromethane, ug/L		<1000	<200
Dibromochloromethane, ug/L		<500	<100
Ethylbenzene, ug/L		<500	<100
Methylene chloride, ug/L		<500	<100
Tetrachloroethene, ug/L		1000	1800
Trichloroethene, ug/L		<500	<100
Trichlorofluoromethane, ug/L		<500	<100
Toluene, ug/L		<500	<100
Vinyl chloride, ug/L		<500	<100
trans-1,2-Dichloroethene, ug/L		<500	<100
trans-1,3-Dichloropropene, ug/L		<500	<100
Other VOCs Method 624 (SOP MS 00188)		---	---



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-564-9	G-12 BC/QC DUP	27 OCT 89
PARAMETER		10-564-9
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	<0.05	
Nitrate (as N), mg/L	<0.02	
Silica (as SiO ₂), mg/L	27	
Filterable Residue (TDS), mg/L	520	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	210	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	210	
Calcium (EDTA Titration), mg/L	85	
Chloride, mg/L	79	
Fluoride, mg/L	0.27	
Sulfate, mg/L	110	
Boron, mg/L	0.10	
Magnesium, mg/L	20	
Potassium, mg/L	5.2	
Sodium, mg/L	82	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-564-10	G-12 BC/QC SPK	27 OCT 89
PARAMETER		10-564-10
Nitrate Nitrogen		
Nitrate (as N03), Percent	86	
Nitrate (as N), Percent	86	
Silica (as Si02), Percent	108	
Filterable Residue (TDS), Percent	90	
Alkalinity		
Bicarbonate Alk (as CaCO3), Percent	99	
Total Alkalinity (as CaCO3), Percent	99	
Other Alkalinity	---	
Calcium (EDTA Titration), Percent	98	
Chloride, Percent	93	
Fluoride, Percent	95	
Sulfate, Percent	98	
Boron, Percent	102	
Magnesium, Percent	94	
Potassium, Percent	100	
Sodium, Percent	102	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-564-10	G-12 BC/QC SPK	27 OCT 89
PARAMETER		10-564-10
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/01/89
Date Analyzed		11/09/89
Dilution Factor, Times 1		1
BHC, gamma isomer (Lindane), Percent		134
p,p'-DDT, Percent		126
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
10-564-11	G-12 BC/QC DUP-SPK	27 OCT 89
PARAMETER		10-564-11
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/01/89
Date Analyzed		11/09/89
Dilution Factor, Times 1		1
BHC, gamma isomer (Lindane), Percent		116
p,p'-DDT, Percent		92
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-564-12	Laboratory Control Standard	
PARAMETER	10-564-12	
Nitrate Nitrogen		
Nitrate (as N03), Percent	100	
Nitrate (as N), Percent	100	
Silica (as Si02), Percent	99	
Filterable Residue (TDS), Percent	100	
Alkalinity		
Bicarbonate Alk (as CaC03), Percent	100	
Total Alkalinity (as CaC03), Percent	100	
Other Alkalinity	---	
Calcium (EDTA Titration), Percent	98	
Chloride, mg/L	100	
Fluoride, Percent	92	
Sulfate, Percent	98	
Boron, Percent	100	
Magnesium, Percent	99	
Potassium, Percent	104	
Sodium, Percent	98	
Nitric Acid Digestion, Date	11/06/89	



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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
10-564-12	Laboratory Control Standard	
PARAMETER		10-564-12
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/01/89
Date Analyzed		11/09/89
Dilution Factor, Times 1		1
BHC, alpha isomer, Percent		134
BHC, beta isomer, Percent		88
BHC, delta isomer, Percent		152
BHC, gamma isomer (Lindane), Percent		140
p,p'-DDD, Percent		122
p,p'-DDE, Percent		129
p,p'-DDT, Percent		114
Other DDT/BHCs Method 608 (SOP GC 00588)		---



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-564-13	Laboratory Blank	
PARAMETER		10-564-13
Nitrate Nitrogen		
Nitrate (as NO ₃), mg/L	<0.05	
Nitrate (as N), mg/L	<0.05	
Silica (as SiO ₂), mg/L	<1	
Filterable Residue (TDS), mg/L	<10	
Alkalinity		
Carbonate Alk (as CaCO ₃), mg/L	<1	
Bicarbonate Alk (as CaCO ₃), mg/L	<1	
Hydroxide Alk (as CaCO ₃), mg/L	<1	
Total Alkalinity (as CaCO ₃), mg/L	<10	
Calcium (EDTA Titration), mg/L	<1	
Chloride, mg/L	<0.5	
Fluoride, mg/L	<0.05	
Sulfate, mg/L	<2	
Boron, mg/L	<0.05	
Magnesium, mg/L	<0.02	
Potassium, mg/L	<0.5	
Sodium, mg/L	<0.1	
Nitric Acid Digestion, Date:		11/06/89



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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-564-13	Laboratory Blank	10-564-13
PARAMETER		
DDT/BHCs Method 608 (SOP GC 00588)		11/01/89
Date Extracted		11/09/89
Date Analyzed		
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-564-15	TB-1	27 OCT 89
PARAMETER	10-564-15	
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/10/89
Date Analyzed		11/10/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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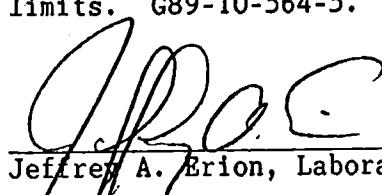
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-564-15	TB-1	27 OCT 89
PARAMETER		10-564-15
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Amended report; added date sampled to sample G89-10-564-15. Also adjusted detection limits for sample G89-10-564-5 to correctly reflect one significant figure for non-detected compounds.

01/02/90 -- L. Brack

Corrected dilution factor to match detection limits. G89-10-564-5. 02/16/90. --J. Freemyer.


Jeffrey A. Erion, Laboratory Manager





BROWN AND CALDWELL LABORATORIES

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

12-29-89

ANALYTICAL REPORT

FAX: (818) 247-9797

LOG NO: G89-10-565

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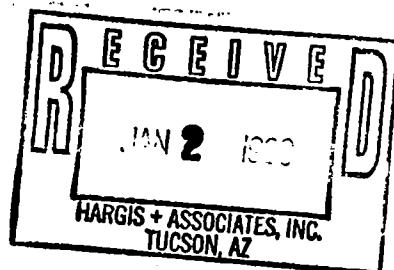
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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-565-1	G-12	27 OCT 89
PARAMETER		10-565-1
VOCs Method 624 (SOP MS 00188)		
Date Extracted		10/31/89
Date Analyzed		10/31/89
Dilution Factor, Times 1		10
1,1,1-Trichloroethane, ug/L		<10
1,1,2,2-Tetrachloroethane, ug/L		<10
1,1,2-Trichloroethane, ug/L		<10
1,1-Dichloroethane, ug/L		<10
1,1-Dichloroethene, ug/L		<10
1,2-Dichloroethane, ug/L		<10
1,2-Dichlorobenzene, ug/L		<10
1,2-Dichloropropane, ug/L		<10
1,3-Dichlorobenzene, ug/L		<10
cis-1,3-Dichloropropene, ug/L		<10
1,4-Dichlorobenzene, ug/L		<10
2-Chloroethylvinylether, ug/L		<10
Acetone, ug/L		<100
Acrolein, ug/L		<200
Acrylonitrile, ug/L		<200
Bromodichloromethane, ug/L		<10
Bromomethane, ug/L		<10
Benzene, ug/L		23
Chlorobenzene, ug/L		1100
Carbon Tetrachloride, ug/L		<10
Chloroethane, ug/L		<10
Bromoform, ug/L		<10
Chloroform, ug/L		<10





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Received: 30 OCT 89
Reported: 01 NOV 89

Ms. Lanae Raymond
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Project: 218.2

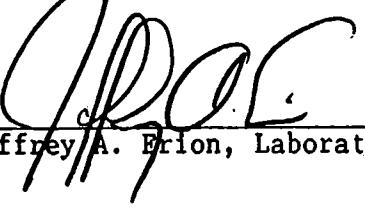
REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-565-1	G-12	27 OCT 89
PARAMETER	10-565-1	
Chloromethane, ug/L	<20	
Dibromochloromethane, ug/L	<10	
Ethylbenzene, ug/L	<10	
Methylene chloride, ug/L	<10	
Tetrachloroethene, ug/L	<10	
Trichloroethene, ug/L	<10	
Trichlorofluoromethane, ug/L	<10	
Toluene, ug/L	<10	
Vinyl chloride, ug/L	<10	
trans-1,2-Dichloroethene, ug/L	<10	
trans-1,3-Dichloropropene, ug/L	<10	
Other VOCs Method 624 (SOP MS 00188)	---	

Amended report; bromomethane detection limit
corrected in sample G89-10-565-1.

12/29/89 -- L. Brack


Jeffrey A. Erion, Laboratory Manager



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737FAX: (818) 247-9797
LOG NO: G89-11-308Received: 17 NOV 89
Reported: 05 DEC 89

Ms. Lanae Raymond
Hargis & Associates, Inc.
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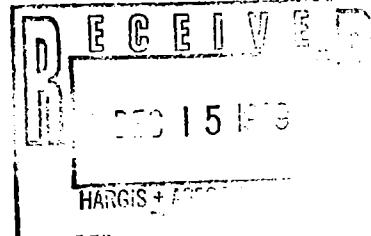
CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
11-308-1	MW-4	16 NOV 89
11-308-2	G-1	16 NOV 89
PARAMETER		11-308-1 11-308-2
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted	11/21/89	11/21/89
Date Analyzed	12/01/89	12/01/89
Dilution Factor, Times 1	1	1
BHC, alpha isomer, ug/L	<0.8	<0.04
BHC, beta isomer, ug/L	<0.04	<0.04
BHC, delta isomer, ug/L	<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04
Total BHC Isomers, ug/L	<0.8	<0.04
Total DDT Metabolites, ug/L	<0.8	<0.04
p,p'-DDD, ug/L	<0.04	<0.04
p,p'-DDE, ug/L	<0.04	<0.04
p,p'-DDT, ug/L	<0.8	<0.04
o,p'-DDD, ug/L	<0.04	<0.04
o,p'-DDE, ug/L	<0.04	<0.04
o,p'-DDT, ug/L	<0.8	<0.04





BROWN AND CALDWELL LABORATORIES

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CC: Ms. Kathryn Parker

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REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
11-308-1	MW-4	16 NOV 89
11-308-2	G-1	16 NOV 89
PARAMETER		11-308-1 11-308-2
VOCs Method 624 (SOP MS 00188)		
Date Extracted		11/24/89 11/24/89
Date Analyzed		11/24/89 11/24/89
Dilution Factor, Times 1		50 50
1,1,1-Trichloroethane, ug/L		<50 <50
1,1,2,2-Tetrachloroethane, ug/L		<50 <50
1,1,2-Trichloroethane, ug/L		<50 <50
1,1-Dichloroethane, ug/L		<50 <50
1,1-Dichloroethene, ug/L		<50 <50
1,2-Dichloroethane, ug/L		<50 <50
1,2-Dichlorobenzene, ug/L		<50 <50
1,2-Dichloropropane, ug/L		<50 <50
1,3-Dichlorobenzene, ug/L		<50 <50
cis-1,3-Dichloropropene, ug/L		<50 <50
1,4-Dichlorobenzene, ug/L		<50 <50
2-Chloroethylvinylether, ug/L		<50 <50
Acetone, ug/L		<500 <500
Acrolein, ug/L		<1000 <1000
Acrylonitrile, ug/L		<1000 <1000
Bromodichloromethane, ug/L		<50 <50
Bromomethane, ug/L		<50 <50
Benzene, ug/L		<50 <50
Chlorobenzene, ug/L		360 250
Carbon Tetrachloride, ug/L		<50 <50
Chloroethane, ug/L		<50 <50
Bromoform, ug/L		<50 <50



BROWN AND CALDWELL LABORATORIES

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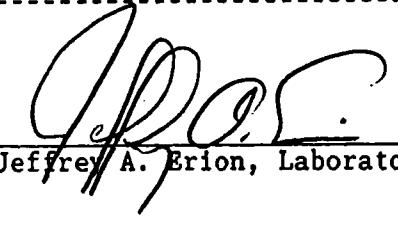
CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
11-308-1	MW-4	16 NOV 89
11-308-2	G-1	16 NOV 89
PARAMETER		
	11-308-1	11-308-2
Chloroform, ug/L	<50	<50
Chloromethane, ug/L	<100	<100
Dibromochloromethane, ug/L	<50	<50
Ethylbenzene, ug/L	<50	<50
Methylene chloride, ug/L	<50	<50
Tetrachloroethene, ug/L	300	<50
Trichloroethene, ug/L	<50	<50
Trichlorofluoromethane, ug/L	<50	<50
Toluene, ug/L	<50	<50
Vinyl chloride, ug/L	<50	<50
trans-1,2-Dichloroethene, ug/L	<50	<50
trans-1,3-Dichloropropene, ug/L	<50	<50
Other VOCs Method 624 (SOP MS 00188)	---	---


Jeffrey A. Erion, Laboratory Manager

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BROWN AND CALDWELL LABORATORIES

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

ANALYTICAL REPORT

FAX: (818) 247-9797

LOG NO: G89-11-319

Received: 20 NOV 89
Reported: 05 DEC 89

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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
11-319-1	LG-2					17 NOV 89
11-319-2	MW-1					17 NOV 89
11-319-3	G-2					17 NOV 89
11-319-4	BF-9					17 NOV 89
11-319-5	BF-1					18 NOV 89
PARAMETER		11-319-1	11-319-2	11-319-3	11-319-4	11-319-5
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		11/21/89	11/21/89	11/21/89	11/21/89	11/21/89
Date Analyzed		12/02/89	12/02/89	12/02/89	12/02/89	12/02/89
Dilution Factor, Times 1		1	50	10	20	5
BHC, alpha isomer, ug/L		<0.04	40	<0.4	<0.8	<0.2
BHC, beta isomer, ug/L		<0.04	52	<0.4	<0.8	<0.2
BHC, delta isomer, ug/L		<0.04	21	<0.4	<0.8	<0.2
BHC, gamma isomer (Lindane), ug/L		<0.04	86	0.82	<0.8	<0.2
Total BHC Isomers, ug/L		<0.04	200	0.82	<0.8	<0.2
Total DDT Metabolites, ug/L		<0.04	<50	<0.4	21	0.16
p,p'-DDD, ug/L		<0.04	<50	<0.4	15	0.16
p,p'-DDE, ug/L		<0.04	<50	<0.4	0.9	<0.2
p,p'-DDT, ug/L		<0.04	<50	<0.4	<0.8	<0.2
o,p'-DDD, ug/L		<0.04	<50	<0.4	5	<0.2
o,p'-DDE, ug/L		<0.04	<50	<0.4	<0.8	<0.2
o,p'-DDT, ug/L		<0.04	<50	<0.4	<0.8	<0.2



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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		11-319-1	11-319-2	11-319-3	11-319-4	11-319-5
VOCs Method 624 (SOP MS 00188)						
Date Extracted		12/01/89	12/01/89	12/01/89	12/01/89	12/01/89
Date Analyzed		12/01/89	12/01/89	12/01/89	12/01/89	12/01/89
Dilution Factor, Times 1		5	50	200	200	5
1,1,1-Trichloroethane, ug/L	<5	<50	<200	<200	<200	<5
1,1,2,2-Tetrachloroethane, ug/L	<5	<50	<200	<200	<200	<5
1,1,2-Trichloroethane, ug/L	<5	<50	<200	<200	<200	<5
1,1-Dichloroethane, ug/L	<5	<50	<200	<200	<200	<5
1,1-Dichloroethene, ug/L	<5	<50	<200	<200	<200	<5
1,2-Dichloroethane, ug/L	<5	<50	<200	<200	<200	<5
1,2-Dichlorobenzene, ug/L	<5	86	<200	<200	<200	<5
1,2-Dichloropropane, ug/L	<5	<50	<200	<200	<200	<5
1,3-Dichlorobenzene, ug/L	<5	<50	<200	<200	<200	<5
cis-1,3-Dichloropropene, ug/L	<5	<50	<200	<200	<200	<5
1,4-Dichlorobenzene, ug/L	<5	130	<200	<200	<200	<5
2-Chloroethylvinylether, ug/L	<5	<50	<200	<200	<200	<5
Acetone, ug/L	<50	<500	<2000	<2000	<2000	<50
Acrolein, ug/L	<100	<1000	<4000	<4000	<4000	<100
Acrylonitrile, ug/L	<100	<1000	<4000	<4000	<4000	<100
Bromodichloromethane, ug/L	<5	<50	<200	<200	<200	<5
Bromomethane, ug/L	<5	<50	<200	<200	<200	<5
Benzene, ug/L	<5	9600	<200	<200	<200	<5
Chlorobenzene, ug/L	370	28000	12000	14000	370	



BROWN AND CALDWELL LABORATORIES

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
11-319-1	LG-2					17 NOV 89
11-319-2	MW-1					17 NOV 89
11-319-3	G-2					17 NOV 89
11-319-4	BF-9					17 NOV 89
11-319-5	BF-1					18 NOV 89
PARAMETER	11-319-1	11-319-2	11-319-3	11-319-4	11-319-5	
Carbon Tetrachloride, ug/L	<5	150	<200	<200	<5	
Chloroethane, ug/L	<5	<50	<200	<200	<5	
Bromoform, ug/L	<5	<50	<200	<200	<5	
Chloroform, ug/L	<5	9400	<200	410	<5	
Chloromethane, ug/L	<10	<100	<400	<400	<10	
Dibromochloromethane, ug/L	<5	<50	<200	<200	<5	
Ethylbenzene, ug/L	<5	<50	<200	<200	<5	
Methylene chloride, ug/L	<5	210	<200	<200	<5	
Tetrachloroethene, ug/L	<5	3500	<200	<200	<5	
Trichloroethene, ug/L	<5	120	<200	<200	<5	
Trichlorofluoromethane, ug/L	<5	<50	<200	<200	<5	
Toluene, ug/L	<5	50	<200	<200	<5	
Vinyl chloride, ug/L	<5	<50	<200	<200	<5	
trans-1,2-Dichloroethene, ug/L	<5	<50	<200	<200	<5	
trans-1,3-Dichloropropene, ug/L	<5	<50	<200	<200	<5	
Other VOCs Method 624 (SOP MS 00188)---	---	---	---	---	---	



BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
11-319-6	BF-100		18 NOV 89
11-319-7	WB-1		18 NOV 89
PARAMETER		11-319-6	11-319-7
DDT/BHCs Method 608 (SOP GC 00588)		11/21/89	11/21/89
Date Extracted		12/02/89	12/02/89
Date Analyzed			
Dilution Factor, Times 1		1	1
BHC, alpha isomer, ug/L		<0.04	<0.04
BHC, beta isomer, ug/L		<0.04	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04
Total BHC Isomers, ug/L		<0.04	<0.04
Total DDT Metabolites, ug/L		<0.04	<0.04
p,p'-DDD, ug/L		<0.04	<0.04
p,p'-DDE, ug/L		<0.04	<0.04
p,p'-DDT, ug/L		<0.04	<0.04
o,p'-DDD, ug/L		<0.04	<0.04
o,p'-DDE, ug/L		<0.04	<0.04
o,p'-DDT, ug/L		<0.04	<0.04



BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
11-319-6	BF-100	18 NOV 89
11-319-7	WB-1	18 NOV 89
PARAMETER		11-319-6 11-319-7
VOCs Method 624 (SOP MS 00188)		
Date Extracted	12/01/89	11/29/89
Date Analyzed	12/01/89	11/29/89
Dilution Factor, Times 1	5	1
1,1,1-Trichloroethane, ug/L	<5	<1
1,1,2,2-Tetrachloroethane, ug/L	<5	<1
1,1,2-Trichloroethane, ug/L	<5	<1
1,1-Dichloroethane, ug/L	<5	<1
1,1-Dichloroethene, ug/L	<5	<1
1,2-Dichloroethane, ug/L	<5	<1
1,2-Dichlorobenzene, ug/L	<5	<1
1,2-Dichloropropane, ug/L	<5	<1
1,3-Dichlorobenzene, ug/L	<5	<1
cis-1,3-Dichloropropene, ug/L	<5	<1
1,4-Dichlorobenzene, ug/L	<5	<1
2-Chloroethylvinylether, ug/L	<5	<1
Acetone, ug/L	<50	<10
Acrolein, ug/L	<100	<20
Acrylonitrile, ug/L	<100	<20
Bromodichloromethane, ug/L	<5	<1
Bromomethane, ug/L	<5	<1
Benzene, ug/L	<5	<1
Chlorobenzene, ug/L	540	<1
Carbon Tetrachloride, ug/L	<5	<1
Chloroethane, ug/L	<5	<1
Bromoform, ug/L	<5	<1



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REPORT OF ANALYTICAL RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
11-319-6	BF-100	18 NOV 89
11-319-7	WB-1	18 NOV 89
PARAMETER		11-319-6 11-319-7
Chloroform, ug/L	<5	<1
Chloromethane, ug/L	<10	<2
Dibromochloromethane, ug/L	<5	<1
Ethylbenzene, ug/L	<5	<1
Methylene chloride, ug/L	<5	<1
Tetrachloroethene, ug/L	<5	<1
Trichloroethene, ug/L	<5	<1
Trichlorofluoromethane, ug/L	<5	<1
Toluene, ug/L	<5	<1
Vinyl chloride, ug/L	<5	<1
trans-1,2-Dichloroethene, ug/L	<5	<1
trans-1,3-Dichloropropene, ug/L	<5	<1
Other VOCs Method 624 (SOP MS 00188)	---	---



BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

Page 7

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
11-319-8	WB-2		17 NOV 89
11-319-9	WB-3		17 NOV 89
PARAMETER		11-319-8	11-319-9
DDT/BHCs Method 608 (SOP GC 00588)			
Date Extracted		11/21/89	11/21/89
Date Analyzed		12/02/89	12/02/89
Dilution Factor, Times 1		1	1
BHC, alpha isomer, ug/L		<0.04	<0.04
BHC, beta isomer, ug/L		<0.04	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04
Total BHC Isomers, ug/L		<0.04	<0.04
Total DDT Metabolites, ug/L		<0.04	<0.04
p,p'-DDD, ug/L		<0.04	<0.04
p,p'-DDE, ug/L		<0.04	<0.04
p,p'-DDT, ug/L		<0.04	<0.04
o,p'-DDD, ug/L		<0.04	<0.04
o,p'-DDE, ug/L		<0.04	<0.04
o,p'-DDT, ug/L		<0.04	<0.04



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REPORT OF ANALYTICAL RESULTS

Page 8

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
11-319-10	TB-2		17 NOV 89
11-319-11	TB-1		18 NOV 89
PARAMETER		11-319-10	11-319-11
VOCs Method 624 (SOP MS 00188)			
Date Extracted		11/29/89	11/29/89
Date Analyzed		11/29/89	11/29/89
Dilution Factor, Times 1		1	1
1,1,1-Trichloroethane, ug/L		<1	<1
1,1,2,2-Tetrachloroethane, ug/L		<1	<1
1,1,2-Trichloroethane, ug/L		<1	<1
1,1-Dichloroethane, ug/L		<1	<1
1,1-Dichloroethene, ug/L		<1	<1
1,2-Dichloroethane, ug/L		<1	<1
1,2-Dichlorobenzene, ug/L		<1	<1
1,2-Dichloropropane, ug/L		<1	<1
1,3-Dichlorobenzene, ug/L		<1	<1
cis-1,3-Dichloropropene, ug/L		<1	<1
1,4-Dichlorobenzene, ug/L		<1	<1
2-Chloroethylvinylether, ug/L		<1	<1
Acetone, ug/L		<10	<10
Acrolein, ug/L		<20	<20
Acrylonitrile, ug/L		<20	<20
Bromodichloromethane, ug/L		<1	<1
Bromomethane, ug/L		<1	<1
Benzene, ug/L		<1	<1
Chlorobenzene, ug/L		<1	<1
Carbon Tetrachloride, ug/L		<1	<1
Chloroethane, ug/L		<1	<1
Bromoform, ug/L		<1	<1



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REPORT OF ANALYTICAL RESULTS

Page 9

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
PARAMETER		11-319-10	11-319-11
11-319-10	TB-2		17 NOV 89
11-319-11	TB-1		18 NOV 89
Chloroform, ug/L		<1	<1
Chloromethane, ug/L		<2	<2
Dibromochloromethane, ug/L		<1	<1
Ethylbenzene, ug/L		<1	<1
Methylene chloride, ug/L		<1	<1
Tetrachloroethene, ug/L		<1	<1
Trichloroethene, ug/L		<1	<1
Trichlorofluoromethane, ug/L		<1	<1
Toluene, ug/L		<1	<1
Vinyl chloride, ug/L		<1	<1
trans-1,2-Dichloroethene, ug/L		<1	<1
trans-1,3-Dichloropropene, ug/L		<1	<1
Other VOCs Method 624 (SOP MS 00188)		---	---



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

801 WESTERN AVENUE, GLENDALE, CA 91201
(818) 247-5737

FAX: (818) 247-9797

LOG NO: G89-11-319

Received: 20 NOV 89
Reported: 05 DEC 89

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
11-319-12	BF-1 BC/QC SPK	18 NOV 89
PARAMETER		11-319-12
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/21/89
Date Analyzed		12/02/89
Dilution Factor, Times 1		1
BHC, gamma isomer (Lindane), Percent		60
p,p'-DDT, Percent		90
Other DDT/BHCs Method 608 (SOP GC 00588)		---
VOCs Method 624 (SOP MS 00188)		
Date Extracted		12/01/89
Date Analyzed		12/01/89
Dilution Factor, Times 1		5
1,1-Dichloroethene, Percent		88
Benzene, Percent		84
Chlorobenzene, Percent		102
Trichloroethene, Percent		82
Toluene, Percent		83
Other VOCs Method 624 (SOP MS 00188)		---



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REPORT OF ANALYTICAL RESULTS

Page 11

LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
11-319-13	BF-1 BC/QC DUP-SPK	18 NOV 89
PARAMETER		11-319-13
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/21/89
Date Analyzed		12/02/89
Dilution Factor, Times 1		1
BHC, gamma isomer (Lindane), Percent		89
p,p'-DDT, Percent		90
Other DDT/BHCs Method 608 (SOP GC 00588)		---
VOCs Method 624 (SOP MS 00188)		
Date Extracted		12/01/89
Date Analyzed		12/01/89
Dilution Factor, Times 1		5
1,1-Dichloroethene, Percent		96
Benzene, Percent		93
Chlorobenzene, Percent		97
Trichloroethene, Percent		89
Toluene, Percent		90
Other VOCs Method 624 (SOP MS 00188)		---



BROWN AND CALDWELL LABORATORIES

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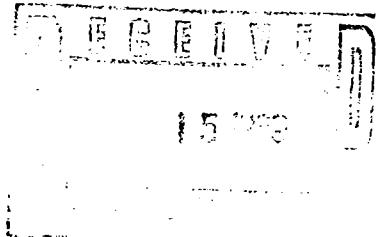
CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 12

LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
11-319-14	Laboratory Control Standard	
PARAMETER		11-319-14
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/21/89
Date Analyzed		12/02/89
Dilution Factor, Times 1		1
BHC, alpha isomer, Percent		61
BHC, beta isomer, Percent		76
BHC, delta isomer, Percent		118
BHC, gamma isomer (Lindane), Percent		76
p,p'-DDD, Percent		128
p,p'-DDE, Percent		120
p,p'-DDT, Percent		116
Other DDT/BHCs Method 608 (SOP GC 00588)		---





BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
11-319-14	Laboratory Control Standard	
PARAMETER		11-319-14
VOCs Method 624 (SOP MS 00188)		
Date Extracted		12/01/89
Date Analyzed		12/01/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		96
1,1,2,2-Tetrachloroethane, Percent		65
1,1,2-Trichloroethane, Percent		106
1,1-Dichloroethane, Percent		89
1,1-Dichloroethene, Percent		82
1,2-Dichloroethane, Percent		109
1,2-Dichlorobenzene, Percent		91
1,2-Dichloropropane, Percent		92
1,3-Dichlorobenzene, Percent		94
cis-1,3-Dichloropropene, Percent		78
1,4-Dichlorobenzene, Percent		90
2-Chloroethylvinylether, Percent		130
Acetone, Percent		94
Acrolein, Percent		16
Acrylonitrile, Percent		78
Bromodichloromethane, Percent		118
Bromomethane, Percent		63
Benzene, Percent		94
Chlorobenzene, Percent		92
Carbon Tetrachloride, Percent		96
Chloroethane, Percent		79
Bromoform, Percent		103
Chloroform, Percent		95



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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, NON-SALINE WATER SAMPLES	DATE SAMPLED
11-319-14	Laboratory Control Standard	
PARAMETER		11-319-14
Chloromethane, Percent	38	
Dibromochloromethane, Percent	104	
Ethylbenzene, Percent	108	
Methylene chloride, Percent	111	
Tetrachloroethene, Percent	86	
Trichloroethene, Percent	120	
Trichlorofluoromethane, Percent	90	
Toluene, Percent	102	
Vinyl chloride, Percent	44	
trans-1,2-Dichloroethene, Percent	92	
trans-1,3-Dichloropropene, Percent	91	
Other VOCs Method 624 (SOP MS 00188)	---	



BROWN AND CALDWELL LABORATORIES

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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
11-319-15	Laboratory Blank	
PARAMETER		11-319-15
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		11/21/89
Date Analyzed		12/02/89
Dilution Factor, Times 1		1
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04



BROWN AND CALDWELL LABORATORIES

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 16

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
11-319-15	Laboratory Blank	
PARAMETER		11-319-15
VOCs Method 624 (SOP MS 00188)		
Date Extracted		12/01/89
Date Analyzed		12/01/89
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
cis-1,3-Dichloropropene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Bromoform, ug/L		<1
Chloroform, ug/L		<1



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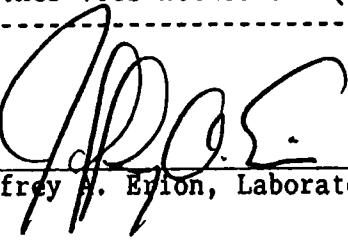
CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 17

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
11-319-15	Laboratory Blank	11-319-15
PARAMETER		
Chloromethane, ug/L	<2	
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Vinyl chloride, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	--	


Jeffrey A. Erion, Laboratory Manager

Appendix C



HARGIS + ASSOCIATES, INC.

APPENDIX C

**ANALYTICAL TECHNOLOGIES, INC. RAW ANALYTICAL DATA
FOR LABORATORY SPLIT SAMPLES, FROM OCTOBER-NOVEMBER 1989
QUARTERLY GROUNDWATER SAMPLING ROUND**



HARGIS + ASSOCIATES, INC.

APPENDIX C

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REPORT LOG NO: 910400

REPORT LOG NO: 910424

REPORT LOG NO: 910450

REPORT LOG NO: 910462

REPORT LOG NO: 911283



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 91040001

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	:	HARGIS & ASSOC.-TUCSON	DATE SAMPLED	:	10/24/89
PROJECT #	:	218.2	DATE RECEIVED	:	10/25/89
PROJECT NAME	:	MONROSE	DATE EXTRACTED	:	10/30/89
CLIENT I.D.	:	MW-14	DATE ANALYZED	:	12/09/89
SAMPLE MATRIX	:	WATER	UNITS	:	UG/L
			DILUTION FACTOR	:	4

COMPOUNDS	RESULTS
ALDRIN	<0.20
ALPHA - BHC	0.29
BETA - BHC	0.13
GAMMA-BHC (LINDANE)	<0.040
DELTA - BHC	0.051
CHLORDANE	<2.0
P,P'-DDD	<0.080
P,P'-DDE	<0.080
P,P'-DDT	<0.080
DIELDRIN	<0.40
ENDOSULFAN I	<0.20
ENDOSULFAN II	<0.40
ENDOSULFAN SULFATE	<0.40
ENDRIN	<0.40
ENDRIN KETONE	<0.40
HEPTACHLOR	<0.20
HEPTACHLOR EPOXIDE	<0.20
TOXAPHENE	<4.0
METHOXYCHLOR	<2.0
AROCLOR 1016	<2.0
AROCLOR 1221	<2.0
AROCLOR 1232	<2.0
AROCLOR 1242	<2.0
AROCLOR 1248	<2.0
AROCLOR 1254	<2.0
AROCLOR 1260	<2.0
O,P'-DDD	<0.080
O,P'-DDE	<0.080
O,P'-DDT	<0.080
TOTAL BHC	0.47
TOTAL DDT	<0.080

SURROGATE PERCENT RECOVERIES

DBC (%)

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GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 91040002

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	:	HARGIS & ASSOC.-TUCSON	DATE SAMPLED	:	10/25/89
PROJECT #	:	218.2	DATE RECEIVED	:	10/25/89
PROJECT NAME	:	MONROSE	DATE EXTRACTED	:	10/30/89
CLIENT I.D.	:	BF-5	DATE ANALYZED	:	12/09/89
SAMPLE MATRIX	:	WATER	UNITS	:	UG/L
			DILUTION FACTOR	:	1

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

89



Analytical Technologies, Inc GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910400
DATE EXTRACTED : 10/30/89
DATE ANALYZED : 11/13/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

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QUALITY CONTROL DATA

ATI I.D. : 910400
TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON DATE EXTRACTED : 10/30/89
PROJECT # : 218.2 DATE ANALYZED : 11/13/89
PROJECT NAME : MONTROSE SAMPLE MATRIX : WATER
REF I.D. : 91042401 UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED %	SPIKED %	DUP.	DUP.	RPD	
				RESULT SPIKED	SAMPLE REC.		
LINDANE	<0.010	0.48	0.36	75	0.35	73	3
HEPTACHLOR	<0.050	0.40	0.26	65	0.25	63	4
ALDRIN	<0.050	0.32	0.22	69	0.22	69	0
DIELDRIN	<0.10	1.2	0.96	80	1.0	83	4
ENDRIN	<0.10	0.92	0.78	85	0.84	91	7
4,4' DDT	<0.020	1.4	0.97	69	1.1	79	13

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 91040001

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : MW-14
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/24/89
DATE RECEIVED : 10/25/89
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : 50

COMPOUNDS	RESULTS
CHLOROMETHANE	<500
BROMOMETHANE	<500
VINYL CHLORIDE	<50
CHLOROETHANE	<50
METHYLENE CHLORIDE	<250
ACETONE	<500
CARBON DISULFIDE	<50
1,1-DICHLOROETHENE	<50
1,1-DICHLOROETHANE	<50
1,2-DICHLOROETHENE (TOTAL)	<50
CHLOROFORM	390
1,2-DICHLOROETHANE	<500
2-BUTANONE (MEK)	<50
1,1,1-TRICHLOROETHANE	<50
CARBON TETRACHLORIDE	<50
VINYL ACETATE	<500
BROMODICHLOROMETHANE	<50
1,1,2,2-TETRACHLOROETHANE	<50
1,2-DICHLOROPROPANE	<50
CIS-1,3-DICHLOROPROPENE	<50
TRICHLOROETHENE	<50
DIBROMOCHLOROMETHANE	<50
1,1,2 TRICHLOROETHANE	9200
BENZENE	<50
TRANS-1,3-DICHLOROPROPENE	<500
2-CHLOROETHYLVINYLEther	<250
BROMOFORM	<500
2-HEXANONE (MBK)	<500
4-METHYL-2-PENTANONE (MIBK)	<50
TETRACHLOROETHENE	82
TOLUENE	<50
CHLOROBENZENE	1700
ETHYL BENZENE	<50
STYRENE	1800
TOTAL XYLEMES	<250
DICHLOROBENZENES	

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	95
BFB (%)	104
TOLUENE-D8 (%)	98

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

 Analytical Technologies, Inc.

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91040001

MATRIX : WATER

UNITS : UG/L

COMPOUNDS	RESULTS
318 METHYLBUTANE	600
367 PENTANE	400
383 HEXENE	400
408 METHYLCYCLOPENTANE	800
990 ETHENYLMETHYLBENZENE	300



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 91040002

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : BF-5
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/25/89
DATE RECEIVED : 10/25/89
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : 30

COMPOUNDS	RESULTS
CHLOROMETHANE	<300
BROMOMETHANE	<300
VINYL CHLORIDE	<30
CHLOROETHANE	<30
METHYLENE CHLORIDE	<150
ACETONE	<300
CARBON DISULFIDE	<30
1,1-DICHLOROETHENE	<30
1,1-DICHLOROETHANE	<30
1,2-DICHLOROETHENE (TOTAL)	<30
CHLOROFORM	<30
1,2-DICHLOROETHANE	<30
2-BUTANONE (MEK)	<300
1,1,1-TRICHLOROETHANE	<30
CARBON TETRACHLORIDE	<300
VINYL ACETATE	<30
BROMODICHLOROMETHANE	<30
1,1,2,2-TETRACHLOROETHANE	<30
1,2-DICHLOROPROPANE	<30
CIS-1,3-DICHLOROPROPENE	<30
TRICHLOROETHENE	<30
DIBROMOCHLOROMETHANE	<30
1,1,2 TRICHLOROETHANE	<30
BENZENE	<30
TRANS-1,3-DICHLOROPROPENE	<30
2-CHLOROETHYL VINYL ETHER	<300
BROMOFORM	<150
2-HEXANONE (MBK)	<300
4-METHYL-2-PENTANONE (MIBK)	<30
TETRACHLOROETHENE	<30
TOLUENE	2400
CHLOROBENZENE	<30
ETHYL BENZENE	<30
STYRENE	<30
TOTAL XYLENES	<150
DICHLOROBENZENES	

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	96
BFB (%)	105
TOLUENE-D8 (%)	99

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

 Analytical Technologies, Inc.

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91040002

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 91040003

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : TB-2
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/25/89
DATE RECEIVED : 10/25/89
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<10
2-BUTANONE (MEK)	<1
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<10
2-CHLOROETHYL VINYL ETHER	<5
BROMOFORM	<10
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	98
BFB (%)	103
TOLUENE-D8 (%)	100

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

 Analytical**Technologies**, Inc.

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91040003

MATRIX : WATER

UNITS UG/L

COMPOUNDS

RESULTS

280 TETRAHYDROFURAN

30



GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910400
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	TR
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	102
BFB (%)	103
TOLUENE-D8 (%)	99

TR - Compound detected at an unquantifiable trace level



GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPP 6240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. 910400

UNITS UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 910400

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91046201

DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED %	DUP.	DUP.	RPD
			RESULT SPIKED	SAMPLE REC.	
1,1-DICHLOROETHENE	<1	50	45	90 46	92 2
TRICHLOROETHENE	<1	50	51	102 51	102 0
CHLOROBENZENE	5	50	59	108 57	104 4
TOLUENE	<1	50	51	102 51	102 0
BENZENE	<1	50	50	100 49	98 2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample} - \text{Duplicate Spike})}{\text{Average of Spiked Sample}} \times 100$$



GENERAL CHEMISTRY RESULTS

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 910400

DATE RECEIVED : 10/25/89

REPORT DATE : 12/15/89

PARAMETER	UNITS	01	02
PH	UNITS	6.65	7.70



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 910400

PARAMETER	UNITS	SAMPLE	DUP.	SPIKED	SPIKE	%		
		ATI I.D.	RESULT	RESULT	RPD	SAMPLE CONC	REC	
PH	UNITS	91040002	7.70	7.69	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 91042401

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	:	HARGIS & ASSOC.-TUCSON	DATE SAMPLED	:	10/26/89
PROJECT #	:	218.2	DATE RECEIVED	:	10/26/89
PROJECT NAME	:	MONTROSE	DATE EXTRACTED	:	10/30/89
CLIENT I.D.	:	BF-14	DATE ANALYZED	:	11/14/89
SAMPLE MATRIX	:	WATER	UNITS	:	UG/L
			DILUTION FACTOR	:	1

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

78



Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910424
DATE EXTRACTED : 10/30/89
DATE ANALYZED : 11/13/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

115



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 910424

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91042401

DATE EXTRACTED : 10/30/89
DATE ANALYZED : 11/13/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC. RESULT	SPIKED SPIKED	DUP. %	DUP. %	RPD		
			SAMPLE REC.	SAMPLE REC.			
LINDANE	<0.010	0.48	0.36	75	0.35	73	3
HEPTACHLOR	<0.050	0.40	0.26	65	0.25	63	4
ALDRIN	<0.050	0.32	0.22	69	0.22	69	0
DIELDRIN	<0.10	1.2	0.96	80	1.0	83	4
ENDRIN	<0.10	0.92	0.78	85	0.84	91	7
4,4' DDT	<0.020	1.4	0.97	69	1.1	79	13

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

ATI I.D. : 91042401

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
 PROJECT # : 218.2
 PROJECT NAME : MONROSE
 CLIENT I.D. : BF-14
 SAMPLE MATRIX : WATER

DATE SAMPLED : 10/26/89
 DATE RECEIVED : 10/26/89
 DATE EXTRACTED : N/A
 DATE ANALYZED : 11/02/89
 UNITS : UG/L
 DILUTION FACTOR : 3

COMPOUNDS	RESULTS
CHLOROMETHANE	<30
BROMOMETHANE	<30
VINYL CHLORIDE	<3
CHLOROETHANE	<3
METHYLENE CHLORIDE	<15
ACETONE	300
CARBON DISULFIDE	<3
1,1-DICHLOROETHENE	<3
1,1-DICHLOROETHANE	<3
1,2-DICHLOROETHENE (TOTAL)	<3
CHLOROFORM	4
1,2-DICHLOROETHANE	<3
2-BUTANONE (MEK)	<30
1,1,1-TRICHLOROETHANE	<3
CARBON TETRACHLORIDE	<3
VINYL ACETATE	<30
BROMODICHLOROMETHANE	<3
1,1,2,2-TETRACHLOROETHANE	<3
1,2-DICHLOROPROPANE	<3
CIS-1,3-DICHLOROPROPENE	<3
TRICHLOROETHENE	<3
DIBROMOCHLOROMETHANE	<3
1,1,2 TRICHLOROETHANE	4
BENZENE	<3
TRANS-1,3-DICHLOROPROPENE	<30
2-CHLOROETHYL VINYL ETHER	<15
BROMOFORM	<30
2-HEXANONE (MBK)	<30
4-METHYL-2-PENTANONE (MIBK)	4
TETRACHLOROETHENE	<3
TOLUENE	1100
CHLOROBENZENE	<3
ETHYL BENZENE	<3
STYRENE	<3
TOTAL XYLEMES	<15
DICHLOROBENZENES	

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	90
BFB (%)	109
TOLUENE-D8 (%)	104



Analytical Technologies, Inc ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91042401

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910424
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	TR
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	102
BFB (%)	103
TOLUENE-D8 (%)	99

TR - Compound detected at an unquantifiable trace level



Analytical**Technologies**, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 910424

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



QUALITY CONTROL DATA

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91046201

ATI I.D. : 910424

DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED %	DUP.	DUP.	RPD
			RESULT SPIKED SAMPLE REC.	SPIKED SAMPLE REC.	
1,1-DICHLOROETHENE	<1	50	45	90 46	92 2
TRICHLOROETHENE	<1	50	51	102 51	102 0
CHLOROBENZENE	5	50	59	108 57	104 4
TOLUENE	<1	50	51	102 51	102 0
BENZENE	<1	50	50	100 49	98 2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 910424

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 10/26/89
REPORT DATE : 12/15/89

PARAMETER UNITS 01

PH UNITS 7.77



CLIENT : HARGIS & ASSOC. -TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 910424

PARAMETER	UNITS	SAMPLE	DUP.	SPIKED	SPIKE	%		
		ATI I.D.	RESULT	RESULT	SAMPLE CONC	REC		
PH	UNITS	91046201	6.81	6.78	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 91045001

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : G-12
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/27/89
DATE RECEIVED : 10/27/89
DATE EXTRACTED : 10/30/89
DATE ANALYZED : 11/14/89
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<1.0
TOXAPHENE	<0.50
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

80



Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910450
DATE EXTRACTED : 10/30/89
DATE ANALYZED : 11/13/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

115



QUALITY CONTROL DATA

ATI I.D. : 910450

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91042401

DATE EXTRACTED : 10/30/89
DATE ANALYZED : 11/13/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC. RESULT	SPIKED SPIKED	DUP. %	DUP. %	RPD		
			SAMPLE REC.	SAMPLE REC.			
LINDANE	<0.010	0.48	0.36	75	0.35	73	3
HEPTACHLOR	<0.050	0.40	0.26	65	0.25	63	4
ALDRIN	<0.050	0.32	0.22	69	0.22	69	0
DIELDRIN	<0.10	1.2	0.96	80	1.0	83	4
ENDRIN	<0.10	0.92	0.78	85	0.84	91	7
4,4' DDT	<0.020	1.4	0.97	69	1.1	79	13

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 91045001

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : G-12
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/27/89
DATE RECEIVED : 10/27/89
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : 3

COMPOUNDS	RESULTS
CHLOROMETHANE	<30
BROMOMETHANE	<30
VINYL CHLORIDE	<3
CHLOROETHANE	<3
METHYLENE CHLORIDE	<15
ACETONE	<30
CARBON DISULFIDE	<3
1,1-DICHLOROETHENE	<3
1,1-DICHLOROETHANE	<3
1,2-DICHLOROETHENE (TOTAL)	<3
CHLOROFORM	<3
1,2-DICHLOROETHANE	<30
2-BUTANONE (MEK)	<3
1,1,1-TRICHLOROETHANE	<3
CARBON TETRACHLORIDE	<30
VINYL ACETATE	<3
BROMODICHLOROMETHANE	<3
1,1,2,2-TETRACHLOROETHANE	<3
1,2-DICHLOROPROPANE	<3
CIS-1,3-DICHLOROPROPENE	<3
TRICHLOROETHENE	<3
DIBROMOCHLOROMETHANE	<3
1,1,2 TRICHLOROETHANE	19
BENZENE	<3
TRANS-1,3-DICHLOROPROPENE	<30
2-CHLOROETHYL VINYL ETHER	<15
BROMOFORM	<30
2-HEXANONE (MBK)	<30
4-METHYL-2-PENTANONE (MIBK)	<3
TETRACHLOROETHENE	<3
TOLUENE	1100
CHLOROBENZENE	<3
ETHYL BENZENE	<3
STYRENE	<3
TOTAL XYLENES	<15
DICHLOROBENZENES	

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	93
BFB (%)	108
TOLUENE-D8 (%)	103



Analytical **Technologies, Inc.** ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91045001

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910450
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	TR
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	102
BFB (%)	103
TOLUENE-D8 (%)	99

TR - Compound detected at an unquantifiable trace level



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 910450

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



QUALITY CONTROL DATA

ATI I.D. : 910450

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91046201

DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC. RESULT	SPIKED SPIKED	DUP.	DUP.	RPD
			% SAMPLE	% REC.	
1,1-DICHLOROETHENE	<1	50	45	90 46	92 2
TRICHLOROETHENE	<1	50	51	102 51	102 0
CHLOROBENZENE	5	50	59	108 57	104 4
TOLUENE	<1	50	51	102 51	102 0
BENZENE	<1	50	50	100 49	98 2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 910450

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 10/27/89
REPORT DATE : 12/15/89

PARAMETER UNITS 01

PH UNITS 7.61



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON

PROJECT # : 218.2

PROJECT NAME : MONTROSE

ATI I.D. : 910450

PARAMETER	UNITS	ATI I.D.	SAMPLE	DUP.	SPIKED	SPIKE	%
			RESULT	RESULT	RPD	SAMPLE CONC	REC
PH	UNITS	91046201	6.81	6.78	0	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 91046201

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : MW-26
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/28/89
DATE RECEIVED : 10/28/89
DATE EXTRACTED : 11/02/89
DATE ANALYZED : 11/14/89
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS RESULTS

ALDRIN <0.050
ALPHA - BHC <0.010
BETA - BHC <0.010
GAMMA-BHC (LINDANE) <0.010
DELTA - BHC <0.010
CHLORDANE <0.50
P, P'-DDD <0.020
P, P'-DDE <0.020
P, P'-DDT <0.020
DIELDRIN <0.10
ENDOSULFAN I <0.050
ENDOSULFAN II <0.10
ENDOSULFAN SULFATE <0.10
ENDRIN <0.10
ENDRIN KETONE <0.10
HEPTACHLOR <0.050
HEPTACHLOR EPOXIDE <0.050
TOXAPHENE <1.0
METHOXYCHLOR <0.50
AROCLOR 1016 <0.50
AROCLOR 1221 <0.50
AROCLOR 1232 <0.50
AROCLOR 1242 <0.50
AROCLOR 1248 <0.50
AROCLOR 1254 <0.50
AROCLOR 1260 <0.50
O, P'-DDD <0.020
O, P'-DDE <0.020
O, P'-DDT <0.020
TOTAL BHC <0.010
TOTAL DDT <0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

101



REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910462
DATE EXTRACTED : 11/02/89
DATE ANALYZED : 11/14/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.020
P, P'-DDD	<0.020
P, P'-DDE	<0.020
P, P'-DDT	<0.10
DIELDRIN	<0.050
ENDOSULFAN I	<0.10
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<1.0
TOXAPHENE	<0.50
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.020
O, P'-DDD	<0.020
O, P'-DDE	<0.020
O, P'-DDT	<0.010
TOTAL BHC	<0.020
TOTAL DDT	

SURROGATE PERCENT RECOVERIES

DBC (%)

116



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 910462

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
REF I.D. : 91046201

DATE EXTRACTED : 11/02/89
DATE ANALYZED : 11/14/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED RESULT	%	DUP. SPIKED %	DUP. SAMPLE REC. %	RPD
				SPIKE SAMPLE REC.	SAMPLE REC.	
LINDANE	<0.010	0.48	0.43	90	0.42	88
HEPTACHLOR	<0.050	0.40	0.35	83	0.33	83
ALDRIN	<0.050	0.32	0.36	113	0.36	113
DIELDRIN	<0.10	1.2	1.1	92	1.0	83
ENDRIN	<0.10	0.91	0.91	100	0.90	99
4,4' DDT	<0.020	1.4	1.1	79	1.1	79

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 91046201

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : MW-26
SAMPLE MATRIX : WATER

DATE SAMPLED : 10/28/89
DATE RECEIVED : 10/28/89
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	5
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
DICHLOROBENZENES	<5

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	5
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	91
BFB (%)	104
TOLUENE-D8 (%)	98



Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91046201

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 910462
DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	TR
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	102
BFB (%)	103
TOLUENE-D8 (%)	99

TR - Compound detected at an unquantifiable trace level



Analytical **Technologies**, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 910462

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 910462

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91046201

DATE EXTRACTED : N/A
DATE ANALYZED : 11/02/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	%	DUP. SPIKED	DUP. %	RPD
				SAMPLE REC.	SPIKE SAMPLE REC.	
1,1-DICHLOROETHENE	<1	50	45	90	46	92
TRICHLOROETHENE	<1	50	51	102	51	102
CHLOROBENZENE	5	50	59	108	57	104
TOLUENE	<1	50	51	102	51	102
BENZENE	<1	50	50	100	49	98

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical**Technologies**, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 910462

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 10/28/89
REPORT DATE : 12/15/89

PARAMETER UNITS 01

PH UNITS 6.81



Analytical Technologies, Inc. GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 910462

PARAMETER	UNITS	SAMPLE	DUP.	SPIKED	SPIKE	%		
		ATI I.D.	RESULT	RESULT	RPD	SAMPLE CONC	REC	
PH	UNITS	91046201	6.81	6.78	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 91128301

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT	:	HARGIS & ASSOC.-TUCSON	DATE SAMPLED	:	11/18/89
PROJECT #	:	218.2	DATE RECEIVED	:	11/20/89
PROJECT NAME	:	MONTROSE	DATE EXTRACTED	:	11/22/89
CLIENT I.D.	:	BF-1	DATE ANALYZED	:	12/09/89
SAMPLE MATRIX	:	WATER	UNITS	:	UG/L
			DILUTION FACTOR	:	1

COMPOUNDS	RESULTS
-----------	---------

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P, P'-DDD	<0.020
P, P'-DDE	<0.020
P, P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O, P'-DDD	<0.020
O, P'-DDE	<0.020
O, P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

89



Analytical Technologies, Inc. GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 911283
DATE EXTRACTED : 11/22/89
DATE ANALYZED : 12/09/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

103



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 911283

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : REAGENT WATER

DATE EXTRACTED : 11/22/89
DATE ANALYZED : 12/09/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED %	DUP.	DUP.	RPD	
			SPIKED SAMPLE REC.	SAMPLE REC.		
LINDANE	<0.010 0.20	0.16	80	0.18	90	12
HEPTACHLOR	<0.050 0.20	0.13	65	0.14	70	7
ALDRIN	<0.050 0.20	0.11	55	0.11	55	0
DIELDRIN	<0.10 0.50	0.46	92	0.51	102	10
ENDRIN	<0.10 0.50	0.37	74	0.40	80	8
4,4' DDT	<0.020 0.50	0.41	82	0.46	92	11

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample} - \text{Duplicate Spike})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 91128301

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : BF-1
SAMPLE MATRIX : WATER

DATE SAMPLED : 11/18/89
DATE RECEIVED : 11/20/89
DATE EXTRACTED : N/A
DATE ANALYZED : 11/29/89
UNITS : UG/L
DILUTION FACTOR : 3

COMPOUNDS	RESULTS
CHLOROMETHANE	<30
BROMOMETHANE	<30
VINYL CHLORIDE	<3
CHLOROETHANE	<3
METHYLENE CHLORIDE	<15
ACETONE	<30
CARBON DISULFIDE	<3
1,1-DICHLOROETHENE	<3
1,1-DICHLOROETHANE	<3
1,2-DICHLOROETHENE (TOTAL)	<3
CHLOROFORM	<3
1,2-DICHLOROETHANE	<3
2-BUTANONE (MEK)	<30
1,1,1-TRICHLOROETHANE	<3
CARBON TETRACHLORIDE	<3
VINYL ACETATE	<30
BROMODICHLOROMETHANE	<3
1,1,2,2-TETRACHLOROETHANE	<3
1,2-DICHLOROPROPANE	<3
CIS-1,3-DICHLOROPROPENE	<3
TRICHLOROETHENE	<3
DIBROMOCHLOROMETHANE	<3
1,1,2 TRICHLOROETHANE	<3
BENZENE	<3
TRANS-1,3-DICHLOROPROPENE	<3
2-CHLOROETHYL VINYL ETHER	<30
BROMOFORM	<15
2-HEXANONE (MBK)	<30
4-METHYL-2-PENTANONE (MIBK)	<30
TETRACHLOROETHENE	<3
TOLUENE	<3
CHLOROBENZENE	490
ETHYL BENZENE	<3
STYRENE	<3
TOTAL XYLEMES	<3
DICHLOROBENZENES	<15

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	91
BFB (%)	101
TOLUENE-D8 (%)	100



Analytical Technologies, Inc ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 91128301

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 911283
DATE EXTRACTED : N/A
DATE ANALYZED : 11/29/89
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	90
BFB (%)	101
TOLUENE-D8 (%)	101



GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 911283

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



QUALITY CONTROL DATA

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 91128301

ATI I.D. : 911283

DATE EXTRACTED : N/A
DATE ANALYZED : 11/29/89
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC. RESULT	SPIKED Spike Concentration	DUP.	DUP.	RPD
			% SPIKED Sample Rec.	% SPIKED Sample Rec.	
1,1-DICHLOROETHENE	<3	150	140	93 140	93 0
TRICHLOROETHENE	<3	150	170	113 170	113 0
CHLOROBENZENE	490	150	680	127*700	140* 10
TOLUENE	<3	150	170	113 170	113 0
BENZENE	<3	150	160	107 170	113 5

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

* Result out of limits due to sample matrix interference



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 911283

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 11/20/89
REPORT DATE : 12/27/89

PARAMETER UNITS 01

PH UNITS 7.21



Analytical Technologies, Inc GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 911283

PARAMETER	UNITS	SAMPLE	DUP.	SPIKED	SPIKE	%		
		ATI I.D.	RESULT	RESULT	RPD	SAMPLE CONC	REC	
PH	UNITS	91128301	7.21	7.22	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Appendix G



HARGIS + ASSOCIATES, INC.

APPENDIX G

SAMPLE IDENTIFICATION AND CROSS REFERENCE TABLES FEBRUARY 1990 QUARTERLY GROUNDWATER SAMPLING ROUND



HARGIS + ASSOCIATES, INC.

APPENDIX G

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- G-2 FIELD DUPLICATE SAMPLE IDENTIFICATION VERSUS BROWN AND CALDWELL LOG NUMBER
- G-3 FIELD BLANK SAMPLE IDENTIFICATION VERSUS BROWN AND CALDWELL LOG NUMBER
- G-4 TRIP BLANK SAMPLE IDENTIFICATION VERSUS BROWN AND CALDWELL LOG NUMBER
- G-5 BROWN AND CALDWELL LABORATORY QUALITY CONTROL SAMPLE IDENTIFICATION
- G-6 LABORATORY SPLIT SAMPLE IDENTIFICATION VERSUS ANALYTICAL TECHNOLOGIES, INC. SAMPLE LOG NUMBER
- G-7 ANALYTICAL TECHNOLOGIES, INC. LABORATORY QUALITY CONTROL SAMPLE IDENTIFICATION

TABLE G-1

MONTROSE MONITOR WELL
SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>MONTROSE MONITOR WELL SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
MW-6	02-24-90	G90-02-510-10
MW-7	02-24-90	G90-02-510-19
MW-8	02-22-90	G90-02-462-6
MW-8	02-22-90	G90-02-462-13
MW-9	02-22-90	G90-02-462-7
MW-10	02-22-90	G90-02-462-8
MW-11	02-25-90	G90-02-512-4
MW-12	02-24-90	G90-02-510-5
MW-13	02-24-90	G90-02-510-6
MW-14	02-24-90	G90-02-510-4
MW-15	02-23-90	G90-02-500-4
MW-23	02-25-90	G90-02-512-6
MW-24	02-25-90	G90-02-512-7
MW-25	02-22-90	G90-02-462-1
MW-25	02-22-90	G90-02-462-9
MW-26	02-24-90	G90-02-510-18
BF-5	02-24-90	G90-02-510-13
BF-6	02-24-90	G90-02-510-7
BF-7	02-24-90	G90-02-510-1
BF-8	02-23-90	G90-02-500-3
BF-9	02-24-90	G90-02-510-8
BF-10	02-23-90	G90-02-500-10
BF-11	02-23-90	G90-02-500-20
BF-12	02-23-90	G90-02-500-18
BF-13	02-23-90	G90-02-500-17
BF-14	02-23-90	G90-02-500-11
BF-15	02-22-90	G90-02-462-5
BF-15	02-22-90	G90-02-462-12
BF-16	02-23-90	G90-02-500-21
BF-17	02-23-90	G90-02-500-19



HARGIS + ASSOCIATES, INC.

TABLE G-1 (continued)
 MONTROSE MONITOR WELL
 SAMPLE IDENTIFICATION
 VERSUS BROWN AND CALDWELL LOG NUMBER
 Page 2

<u>MONROSE MONITOR WELL SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
G-4	02-24-90	G90-02-510-9
G-5	02-24-90	G90-02-510-14
G-6	02-24-90	G90-02-510-12
G-7	02-23-90	G90-02-500-2
G-8	02-23-90	G90-02-500-15
G-9	02-23-90	G90-02-500-9
G-11	02-23-90	G90-02-500-1
G-12	02-23-90	G90-02-500-13
G-13	02-23-90	G90-02-500-12
LG-2	02-24-90	G90-02-510-17
LW-1	02-25-90	G90-02-512-1
LW-2	02-24-90	G90-02-510-16
LW-3	02-23-90	G90-02-500-22



HARGIS + ASSOCIATES, INC.

TABLE G-2
FIELD DUPLICATE SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>FIELD DUPLICATE SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>PRIMARY SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
MW-2500	02-22-90	MW-25	G90-02-462-2
MW-2500	02-22-90	MW-25	G90-02-462-10
G-1100	02-23-90	G-11	G90-02-500-5
BF-700	02-24-90	BF-7	G90-02-510-2
LW-100	02-25-90	LW-1	G90-02-512-2



HARGIS + ASSOCIATES, INC.

TABLE G-3
FIELD BLANK SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>DATE</u>	<u>FIELD BLANK SAMPLE ID</u>	<u>SAMPLE PREPARATION LOCATION</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
02-22-90	WB-1	MW-25	G90-02-462-3
02-22-90	WB-1	MW-25	G90-02-462-11
02-23-90	WB-1	G-11	G90-02-500-6
02-24-90	WB-1	BF-7	G90-02-510-3
02-25-90	WB-1	LW-1	G90-02-512-3



HARGIS + ASSOCIATES, INC.

TABLE G-4
TRIP BLANK SAMPLE IDENTIFICATION
VERSUS BROWN AND CALDWELL LOG NUMBER

<u>DATE SAMPLED</u>	<u>TRIP BLANK SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
02-22-90	TB-1	G90-02-462-4
02-23-90	TB-1	G90-02-500-15
02-23-90	TB-2	G90-02-500-16
02-24-90	TB-1	G90-02-510-11
02-24-90	TB-2	G90-02-510-14
02-25-90	TB-1	G90-02-512-5



HARGIS + ASSOCIATES, INC.

TABLE G-5

BROWN AND CALDWELL
LABORATORY QUALITY CONTROL
SAMPLE IDENTIFICATION

<u>BROWN AND CALDWELL SAMPLE ID</u>	<u>BROWN AND CALDWELL LOG NUMBER</u>
MW-25 BC/QC Spike	G90-02-462-14
MW-25 BC/QC Duplicate Spike	G90-02-462-15
Laboratory Control Standard	G90-02-462-16
Laboratory Blank	G90-02-462-17
G-11 BC/QC Spike	G90-02-500-7
G-11 BC/QC Duplicate Spike	G90-02-500-8
Laboratory Control Standard	G90-02-500-23
Laboratory Blank	G90-02-500-24
BF-7 BC/QC Spike	G90-02-510-20
BF-7 BC/QC Duplicate Spike	G90-02-510-21
Laboratory Control Standard	G90-02-510-22
Laboratory Blank	G90-02-510-23
LW-1 BC/QC Spike	G90-02-512-8
LW-1 BC/QC Duplicate Spike	G90-02-512-9
Laboratory Control Standard	G90-02-512-10
Laboratory Blank	G90-02-512-11



HARGIS + ASSOCIATES, INC.

TABLE G-6
LABORATORY SPLIT SAMPLE IDENTIFICATION
VERSUS ANALYTICAL TECHNOLOGIES, INC. LOG NUMBER

<u>LABORATORY SPLIT SAMPLE ID</u>	<u>DATE SAMPLED</u>	<u>ANALYTICAL TECHNOLOGIES, INC. LOG NUMBER</u>
MW-25	02-22-90	00227101
G-11	02-23-90	00229201
BF-7	02-24-90	00230401
LW-1	02-25-90	00230601



HARGIS + ASSOCIATES, INC.

TABLE G-7

ANALYTICAL TECHNOLOGIES, INC.
LABORATORY QUALITY CONTROL
SAMPLE IDENTIFICATION

<u>ANALYTICAL TECHNOLOGIES, INC. SAMPLE ID</u>	<u>ANALYTICAL METHOD</u>	<u>DATE ANALYZED</u>	<u>ANALYTICAL TECHNOLOGIES, INC. LAB NUMBER</u>
Reagent Blank	624	02-27-90	002271
Spike	624	02-27-90	002271
Duplicate Spike	624	02-27-90	002271
Reagent Blank	608	03-10-90	002271
Spike	608	03-10-90	002271
Duplicate Spike	608	03-11-90	002271
Reagent Blank	624	02-27-90	002292
Spike	624	02-27-90	002292
Duplicate Spike	624	02-27-90	002292
Reagent Blank	608	03-10-90	002292
Spike	608	03-11-90	002292
Duplicate Spike	608	03-11-90	002292
Reagent Blank	624	03-09-90	002304
Spike	624	03-10-90	002304
Duplicate Spike	624	03-10-90	002304
Reagent Blank	608	03-10-90	002304
Spike	608	03-11-90	002304
Duplicate Spike	608	03-11-90	002304
Reagent Blank	624	03-09-90	002306
Spike	624	03-10-90	002306
Duplicate Spike	624	03-10-90	002306
Reagent Blank	608	03-10-90	002306
Spike	608	03-11-90	002306
Duplicate Spike	608	03-11-90	002306



HARGIS + ASSOCIATES, INC.

Appendix H



HARGIS + ASSOCIATES, INC.

APPENDIX H

**BROWN AND CALDWELL RAW ANALYTICAL DATA FROM
FEBRUARY 1990 QUARTERLY GROUNDWATER SAMPLING ROUND**



HARGIS + ASSOCIATES, INC.

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REPORT LOG NO: G90-02-512

Analytical Report

AMENDED REPORT

3-21-90

LOG NO: G90-02-462

Received: 23 FEB 90

Reported: 09 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-462-1	02-462-2	02-462-3	02-462-4	02-462-5
02-462-1	MW-25				22 FEB 90	
02-462-2	MW-2500				22 FEB 90	
02-462-3	WB-1				22 FEB 90	
02-462-4	TB-1				22 FEB 90	
02-462-5	BF-15				22 FEB 90	
VOCs Method 624 (SOP MS 00188)						
Date Analyzed		02/24/90	02/24/90	02/26/90	02/24/90	02/26/90
Dilution Factor, Times 1		20	20	1	1	500
1,1,1-Trichloroethane, ug/L		<20	<20	<1	<1	<500
1,1,2,2-Tetrachloroethane, ug/L		<20	<20	<1	<1	<500
1,1,2-Trichloroethane, ug/L		<20	<20	<1	<1	<500
1,1-Dichloroethane, ug/L		<20	<20	<1	<1	<500
1,1-Dichloroethene, ug/L		<20	<20	<1	<1	<500
1,2-Dichloroethane, ug/L		130	120	<1	<1	<500
1,2-Dichlorobenzene, ug/L		<20	<20	<1	<1	<500
1,2-Dichloropropane, ug/L		<20	<20	<1	<1	<500
1,3-Dichlorobenzene, ug/L		<20	<20	<1	<1	<500
1,4-Dichlorobenzene, ug/L		<20	<20	<1	<1	<500
2-Chloroethylvinylether, ug/L		<20	<20	<1	<1	<500
Acetone, ug/L		<200	<200	<10	<10	<5000
Acrolein, ug/L		<400	<400	<20	<20	<10000
Acrylonitrile, ug/L		<400	<400	<20	<20	<10000
Bromodichloromethane, ug/L		<20	<20	<1	<1	<500
Bromomethane, ug/L		<20	<20	<1	<1	<500
Benzene, ug/L		1800	1600	<1	<1	<500
Bromoform, ug/L		<20	<20	<1	<1	<500
Chlorobenzene, ug/L		920	860	<1	<1	<500
Carbon Tetrachloride, ug/L		<20	<20	<1	<1	<500

Analytical Report

LOG NO: G90-02-462

Received: 23 FEB 90

Reported: 09 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED			
PARAMETER	02-462-1	02-462-2	02-462-3	02-462-4	02-462-5
Chloroethane, ug/L	<20	<20	<1	<1	<500
Chloroform, ug/L	400	380	<1	<1	<500
Chloromethane, ug/L	<40	<40	<2	<2	<1000
Dibromochloromethane, ug/L	<20	<20	<1	<1	<500
Ethylbenzene, ug/L	50	50	<1	<1	<500
Methylene chloride, ug/L	<20	<20	<1	<1	<500
Trichloroethene, ug/L	<20	<20	<1	<1	<500
Trichlorofluoromethane, ug/L	<20	<20	<1	<1	<500
Toluene, ug/L	1700	1600	<1	<1	36000
Tetrachloroethene, ug/L	<20	<20	<1	<1	<500
Vinyl chloride, ug/L	<20	<20	<1	<1	<500
cis-1,3-Dichloropropene, ug/L	<20	<20	<1	<1	<500
trans-1,2-Dichloroethene, ug/L	<20	<20	<1	<1	<500
trans-1,3-Dichloropropene, ug/L	<20	<20	<1	<1	<500
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---

REVISED REPORT

Analytical Report

LOG NO: G90-02-462

Received: 23 FEB 90
Reported: 09 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-462-6	02-462-7	02-462-8	02-462-9	02-462-10
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted	---	---	---	---	02/27/90	02/27/90
Date Analyzed	---	---	---	---	03/07/90	03/07/90
Dilution Factor, Times 1	---	---	---	---	1	10
Total BHC Isomers, ug/L	---	---	---	---	<0.04	<0.4
Total DDT Metabolites, ug/L	---	---	---	---	<0.04	<0.4
p,p'-DDD, ug/L	---	---	---	---	<0.04	<0.4
p,p'-DDE, ug/L	---	---	---	---	<0.04	<0.4
p,p'-DDT, ug/L	---	---	---	---	<0.04	<0.4
o,p'-DDD, ug/L	---	---	---	---	<0.04	<0.4
o,p'-DDE, ug/L	---	---	---	---	<0.04	<0.4
o,p'-DDT, ug/L	---	---	---	---	<0.04	<0.4
BHC, alpha isomer, ug/L	---	---	---	---	<0.4	<0.4
BHC, beta isomer, ug/L	---	---	---	---	<0.04	<0.4
BHC, delta isomer, ug/L	---	---	---	---	<0.04	<0.4
BHC, gamma isomer (Lindane), ug/L	---	---	---	---	<0.04	<0.4

ANALYSED REPORT

Analytical Report

LOG NO: G90-02-462

Received: 23 FEB 90

Reported: 09 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-462-6	02-462-7	02-462-8	02-462-9	02-462-10
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	02/26/90	03/01/90	02/24/90	---	---	---
Dilution Factor, Times 1	1	1000	20	---	---	---
1,1,1-Trichloroethane, ug/L	<1	<1000	<20	---	---	---
1,1,2,2-Tetrachloroethane, ug/L	<1	<1000	<20	---	---	---
1,1,2-Trichloroethane, ug/L	<1	<1000	<20	---	---	---
1,1-Dichloroethane, ug/L	<1	<1000	<20	---	---	---
1,1-Dichloroethene, ug/L	<1	<1000	<20	---	---	---
1,2-Dichloroethane, ug/L	<1	<1000	<20	---	---	---
1,2-Dichlorobenzene, ug/L	<1	<1000	<20	---	---	---
1,2-Dichloropropane, ug/L	<1	<1000	<20	---	---	---
1,3-Dichlorobenzene, ug/L	<1	<1000	<20	---	---	---
1,4-Dichlorobenzene, ug/L	<1	<1000	<20	---	---	---
2-Chloroethylvinylether, ug/L	<1	<1000	<20	---	---	---
Acetone, ug/L	<10	<10000	<200	---	---	---
Acrolein, ug/L	<20	<50000	<400	---	---	---
Acrylonitrile, ug/L	<20	<50000	<400	---	---	---
Bromodichloromethane, ug/L	<1	<1000	<20	---	---	---
Bromomethane, ug/L	<1	<1000	<20	---	---	---
Benzene, ug/L	<1	<1000	<20	---	---	---
Bromoform, ug/L	<1	<1000	<20	---	---	---
Chlorobenzene, ug/L	<1	150000	870	---	---	---
Carbon Tetrachloride, ug/L	2	<1000	<20	---	---	---

REVISED REPORT

801 Western Avenue
Glendale, CA 91201

818/247-5737
Fax: 818/247-9797

BCA

B C Analytical

Analytical Report

LOG NO: G90-02-462

Received: 23 FEB 90
Reported: 09 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-462-6	02-462-7	02-462-8	02-462-9	02-462-10
Chloroethane, ug/L	<1	<1000	<20	---	---	---
Chloroform, ug/L	<1	28000	<20	---	---	---
Chloromethane, ug/L	<2	<2000	<40	---	---	---
Dibromochloromethane, ug/L	<1	<1000	<20	---	---	---
Ethylbenzene, ug/L	<1	<1000	<20	---	---	---
Methylene chloride, ug/L	<1	<1000	<20	---	---	---
Trichloroethene, ug/L	<1	<1000	<20	---	---	---
Trichlorofluoromethane, ug/L	<1	<1000	<20	---	---	---
Toluene, ug/L	<1	<1000	<20	---	---	---
Tetrachloroethene, ug/L	<1	<1000	<20	---	---	---
Vinyl chloride, ug/L	<1	<1000	<20	---	---	---
cis-1,3-Dichloropropene, ug/L	<1	<1000	<20	---	---	---
trans-1,2-Dichloroethene, ug/L	<1	<1000	<20	---	---	---
trans-1,3-Dichloropropene, ug/L	<1	<1000	<20	---	---	---
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	---

REVIEWED REPORT

Analytical Report

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Received: 23 FEB 90

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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED		
02-462-11	WB-1		22 FEB 90	
02-462-12	BF-15		22 FEB 90	
02-462-13	MW-8		22 FEB 90	
PARAMETER		02-462-11	02-462-12	02-462-13
DDT/BHCs Method 608 (SOP GC 00588)				
Date Extracted		02/27/90	02/27/90	02/27/90
Date Analyzed		03/07/90	03/07/90	03/07/90
Dilution Factor, Times 1		1	1	1
Total BHC Isomers, ug/L		<0.04	<0.04	<0.04
Total DDT Metabolites, ug/L		<0.04	<0.04	<0.04
p,p'-DDD, ug/L		<0.04	<0.04	<0.04
p,p'-DDE, ug/L		<0.04	<0.04	<0.04
p,p'-DDT, ug/L		<0.04	<0.04	<0.04
o,p'-DDD, ug/L		<0.04	<0.04	<0.04
o,p'-DDE, ug/L		<0.04	<0.04	<0.04
o,p'-DDT, ug/L		<0.04	<0.04	<0.04
BHC, alpha isomer, ug/L		<0.04	<0.4	<0.04
BHC, beta isomer, ug/L		<0.04	<0.04	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04	<0.04

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REPORT OF ANALYTICAL RESULTS

Page 7

LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED	
02-462-14	MW-25 BC/QC SPK	22	FEB 90
02-462-15	MW-25 BC/QC DUP-SPK	22	FEB 90
PARAMETER		02-462-14	02-462-15
VOCs Method 624 (SOP MS 00188)		02/26/90	02/26/90
Date Analyzed		02/26/90	02/26/90
Dilution Factor, Times 1	20	20	
1,1-Dichloroethene, Percent	70	75	
Benzene, Percent	61	100	
Chlorobenzene, Percent	60	95	
Ethylbenzene, Percent	85	115	
Trichloroethene, Percent	90	90	
Other VOCs Method 624 (SOP MS 00188)	---	---	---

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REPORT OF ANALYTICAL RESULTS

Page 8

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-462-16	Laboratory Control Standard	
PARAMETER		02-462-16
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		02/27/90
Date Analyzed		03/07/90
Dilution Factor, Times 1		1
p,p'-DDD, Percent		92
p,p'-DDE, Percent		92
p,p'-DDT, Percent		98
BHC, alpha isomer, Percent		73
BHC, beta isomer, Percent		86
BHC, delta isomer, Percent		81
BHC, gamma isomer (Lindane), Percent		81
Other DDT/BHCs Method 608 (SOP GC 00588)		---

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REPORT OF ANALYTICAL RESULTS

Page 9

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-462-16	Laboratory Control Standard	
PARAMETER		02-462-16
VOCs Method 624 (SOP MS 00188)		02/26/90
Date Analyzed		02/26/90
Dilution Factor, Times 1	1	
1,1,1-Trichloroethane, Percent	90	
1,1,2,2-Tetrachloroethane, Percent	105	
1,1,2-Trichloroethane, Percent	105	
1,1-Dichloroethane, Percent	85	
1,1-Dichloroethene, Percent	85	
1,2-Dichloroethane, Percent	100	
1,2-Dichlorobenzene, Percent	100	
1,2-Dichloropropane, Percent	85	
1,3-Dichlorobenzene, Percent	90	
1,4-Dichlorobenzene, Percent	95	
2-Chloroethylvinylether, Percent	120	
Acetone, Percent	58	
Acrolein, Percent	94	
Acrylonitrile, Percent	100	
Bromodichloromethane, Percent	95	
Bromomethane, Percent	70	
Benzene, Percent	100	
Bromoform, Percent	100	
Chlorobenzene, Percent	95	
Carbon Tetrachloride, Percent	85	
Chloroethane, Percent	80	
Chloroform, Percent	90	
Chloromethane, Percent	55	
Dibromochloromethane, Percent	85	

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REPORT OF ANALYTICAL RESULTS

Page 10

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-462-16	Laboratory Control Standard	
PARAMETER		02-462-16
Ethylbenzene, Percent	95	
Methylene chloride, Percent	100	
Trichloroethene, Percent	85	
Trichlorofluoromethane, Percent	80	
Toluene, Percent	100	
Tetrachloroethene, Percent	90	
Vinyl chloride, Percent	50	
cis-1,3-Dichloropropene, Percent	85	
trans-1,2-Dichloroethene, Percent	100	
trans-1,3-Dichloropropene, Percent	95	
Other VOCs Method 624 (SOP MS 00188)	---	

RECEIVED REPORT

Analytical Report

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 11

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-462-17	Laboratory Blank	
PARAMETER		02-462-17
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		02/27/90
Date Analyzed		03/07/90
Dilution Factor, Times 1		1
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04

Analytical Report

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 12

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-462-17	Laboratory Blank	
PARAMETER		02-462-17
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		02/26/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Bromoform, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Chloroform, ug/L		<1
Chloromethane, ug/L		<2
Dibromochloromethane, ug/L		<1

Analytical Report

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 13

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-462-17	Laboratory Blank	
PARAMETER		02-462-17
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Vinyl chloride, ug/L	<1	
cis-1,3-Dichloropropene, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Please note that the alpha-BHC on samples
G90-02-462-9, -12 were analyzed from a 1:10
dilution due to matrix interference. 03/12/90.

--G. Havalias.

Amended report due to incorrect detection limits
reported for acrolein and acrylonitrile for sample
-3, and for chloroethane for samples -5 and -6.

L. Brack 03/21/90

Jeffrey A. Erion, Laboratory Manager

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90

Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

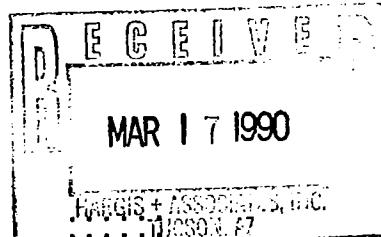
CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-1	02-500-2	02-500-3	02-500-4	02-500-5
02-500-1	G-11				23 FEB 90	
02-500-2	G-7				23 FEB 90	
02-500-3	BF-8				23 FEB 90	
02-500-4	MW-15				23 FEB 90	
02-500-5	G-1100				23 FEB 90	
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		02/27/90	02/27/90	02/27/90	02/27/90	02/27/90
Date Analyzed		03/07/90	03/07/90	03/07/90	03/07/90	03/07/90
Dilution Factor, Times 1		1	1	1	10	1
Total BHC Isomers, ug/L		<0.04	<0.04	<0.04	0.54	0.04
Total DDT Metabolites, ug/L		<0.04	0.14	<0.04	<0.4	0.31
p,p'-DDD, ug/L		<0.04	0.14	<0.04	<0.4	0.31
p,p'-DDE, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
p,p'-DDT, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
o,p'-DDD, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
o,p'-DDE, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
o,p'-DDT, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
BHC, alpha isomer, ug/L		<0.04	<0.04	<0.04	0.54	0.04
BHC, beta isomer, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
BHC, delta isomer, ug/L		<0.04	<0.04	<0.04	<0.4	<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04	<0.04	<0.4	<0.04



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REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-1	02-500-2	02-500-3	02-500-4	02-500-5
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/06/90	03/02/90	03/02/90	03/09/90	03/02/90	
Dilution Factor, Times 1	1	1	50	1000	1	
1,1,1-Trichloroethane, ug/L	<1	<1	<50	<1000	<1	
1,1,2,2-Tetrachloroethane, ug/L	<1	<1	<50	<1000	<1	
1,1,2-Trichloroethane, ug/L	<1	<1	<50	<1000	<1	
1,1-Dichloroethane, ug/L	<1	<1	<50	<1000	<1	
1,1-Dichloroethene, ug/L	<1	<1	<50	<1000	<1	
1,2-Dichloroethane, ug/L	<1	<1	<50	<1000	<1	
1,2-Dichlorobenzene, ug/L	<1	<1	<50	<1000	<1	
1,2-Dichloropropane, ug/L	<1	<1	<50	<1000	<1	
1,3-Dichlorobenzene, ug/L	<1	<1	<50	<1000	<1	
1,4-Dichlorobenzene, ug/L	<1	<1	<50	<1000	<1	
2-Chloroethylvinylether, ug/L	<1	<1	<50	<1000	<1	
Acetone, ug/L	<10	<10	<500	<10000	<10	
Acrolein, ug/L	<20	<20	<1000	<20000	<20	
Acrylonitrile, ug/L	<20	<20	<1000	<20000	<20	
Bromodichloromethane, ug/L	<1	<1	<50	<1000	<1	
Bromomethane, ug/L	<1	<1	<50	<1000	<1	
Benzene, ug/L	<1	<1	<50	<1000	<1	
Bromoform, ug/L	<1	<1	<50	<1000	<1	
Chlorobenzene, ug/L	<1	86	6100	22000	<1	
Carbon Tetrachloride, ug/L	<1	<1	<50	<1000	<1	

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REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-1	02-500-2	02-500-3	02-500-4	02-500-5
02-500-1	G-11			<50	<1000	<1
02-500-2	G-7		<1	<50	<1000	<1
02-500-3	BF-8	<2	<2	<100	<2000	<2
02-500-4	MW-15	<1	<1	<50	<1000	<1
02-500-5	G-1100	<1	<1	<50	<1000	<1
Chloroethane, ug/L		<1	<1	<50	<1000	<1
Chloroform, ug/L		<1	<1	<50	<1000	<1
Chloromethane, ug/L		<2	<2	<100	<2000	<2
Dibromochloromethane, ug/L		<1	<1	<50	<1000	<1
Ethylbenzene, ug/L		<1	<1	<50	<1000	<1
Methylene chloride, ug/L		<1	<1	<50	<1000	<1
Trichloroethene, ug/L		<1	<1	<50	<1000	<1
Trichlorofluoromethane, ug/L		<1	<1	<50	<1000	<1
Toluene, ug/L		<1	<1	<50	<1000	<1
Tetrachloroethene, ug/L		<1	<1	<50	<1000	<1
Vinyl chloride, ug/L		<1	<1	<50	<1000	<1
cis-1,3-Dichloropropene, ug/L		<1	<1	<50	<1000	<1
trans-1,2-Dichloroethene, ug/L		<1	<1	<50	<1000	<1
trans-1,3-Dichloropropene, ug/L		<1	<1	<50	<1000	<1
Other VOCs Method 624 (SOP MS 00188)---		---	---	---	---	---

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REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-6	02-500-9	02-500-10	02-500-11	02-500-12
02-500-6	WB-1				23 FEB 90	
02-500-9	G-9				23 FEB 90	
02-500-10	BF-10				23 FEB 90	
02-500-11	BF-14				23 FEB 90	
02-500-12	G-13				23 FEB 90	
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		02/27/90	---	---	---	---
Date Analyzed		03/07/90	---	---	---	---
Dilution Factor, Times 1		1	---	---	---	---
Total BHC Isomers, ug/L		<0.04	---	---	---	---
Total DDT Metabolites, ug/L		<0.04	---	---	---	---
p,p'-DDD, ug/L		<0.04	---	---	---	---
p,p'-DDE, ug/L		<0.04	---	---	---	---
p,p'-DDT, ug/L		<0.04	---	---	---	---
o,p'-DDD, ug/L		<0.04	---	---	---	---
o,p'-DDE, ug/L		<0.04	---	---	---	---
o,p'-DDT, ug/L		<0.04	---	---	---	---
BHC, alpha isomer, ug/L		<0.04	---	---	---	---
BHC, beta isomer, ug/L		<0.04	---	---	---	---
BHC, delta isomer, ug/L		<0.04	---	---	---	---
BHC, gamma isomer (Lindane), ug/L		<0.04	---	---	---	---

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REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-500-6	02-500-9	02-500-10	02-500-11	02-500-12	
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/02/90	03/02/90	03/06/90	03/01/90	03/01/90	
Dilution Factor, Times 1	1	10	1	10	10	
1,1,1-Trichloroethane, ug/L	<1	<10	<1	<10	<10	
1,1,2,2-Tetrachloroethane, ug/L	<1	<10	<1	<10	<10	
1,1,2-Trichloroethane, ug/L	<1	<10	<1	<10	<10	
1,1-Dichloroethane, ug/L	<1	<10	<1	<10	<10	
1,1-Dichloroethene, ug/L	<1	<10	<1	<10	<10	
1,2-Dichloroethane, ug/L	<1	<10	<1	<10	<10	
1,2-Dichlorobenzene, ug/L	<1	<10	<1	<10	<10	
1,2-Dichloropropane, ug/L	<1	<10	<1	<10	<10	
1,3-Dichlorobenzene, ug/L	<1	<10	<1	<10	<10	
1,4-Dichlorobenzene, ug/L	<1	<10	<1	<10	<10	
2-Chloroethylvinylether, ug/L	<1	<10	<1	<10	<10	
Acetone, ug/L	<10	<100	10	<100	<100	
Acrolein, ug/L	<20	<200	<20	<200	<200	
Acrylonitrile, ug/L	<20	<200	<20	<200	<200	
Bromodichloromethane, ug/L	<1	<10	<1	<10	<10	
Bromomethane, ug/L	<1	<10	<1	<10	<10	
Benzene, ug/L	<1	1000	<1	<10	<10	
Bromoform, ug/L	<1	<10	<1	<10	<10	
Chlorobenzene, ug/L	<1	<10	<1	1400	1100	
Carbon Tetrachloride, ug/L	<1	<10	<1	<10	<10	

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-500-6	02-500-9	02-500-10	02-500-11	02-500-12	
Chloroethane, ug/L	<1	<10	<1	<10	<10	<10
Chloroform, ug/L	<1	<10	<1	<10	<10	<10
Chloromethane, ug/L	<2	<20	<2	<20	<20	<20
Dibromochloromethane, ug/L	<1	<10	<1	<10	<10	<10
Ethylbenzene, ug/L	<1	10	<1	<10	<10	<10
Methylene chloride, ug/L	<1	<10	<1	<10	<10	<10
Trichloroethene, ug/L	<1	<10	<1	<10	<10	<10
Trichlorofluoromethane, ug/L	<1	<10	<1	<10	<10	<10
Toluene, ug/L	<1	<10	<1	<10	<10	<10
Tetrachloroethene, ug/L	<1	<10	<1	<10	<10	<10
Vinyl chloride, ug/L	<1	<10	<1	<10	<10	<10
cis-1,3-Dichloropropene, ug/L	<1	<10	<1	<10	<10	<10
trans-1,2-Dichloroethene, ug/L	<1	<10	<1	<10	<10	<10
trans-1,3-Dichloropropene, ug/L	<1	<10	<1	<10	<10	<10
Other VOCs Method 624 (SOP MS 00188)---	---	---	---	---	---	---

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90

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REPORT OF ANALYTICAL RESULTS

Page 7

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-13	02-500-14	02-500-15	02-500-16	02-500-17
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/01/90	03/01/90	03/01/90	03/01/90	03/02/90	
Dilution Factor, Times 1	10	1	1	1	500	
1,1,1-Trichloroethane, ug/L	<10	<1	<1	<1	<500	
1,1,2,2-Tetrachloroethane, ug/L	<10	<1	<1	<1	<500	
1,1,2-Trichloroethane, ug/L	<10	<1	<1	<1	<500	
1,1-Dichloroethane, ug/L	<10	<1	<1	<1	<500	
1,1-Dichloroethene, ug/L	<10	<1	<1	<1	<500	
1,2-Dichloroethane, ug/L	<10	<1	<1	<1	<500	
1,2-Dichlorobenzene, ug/L	<10	<1	<1	<1	<500	
1,2-Dichloropropane, ug/L	<10	<1	<1	<1	<500	
1,3-Dichlorobenzene, ug/L	<10	<1	<1	<1	<500	
1,4-Dichlorobenzene, ug/L	<10	<1	<1	<1	<500	
2-Chloroethylvinylether, ug/L	<10	<1	<1	<1	<500	
Acetone, ug/L	<100	<10	<10	<10	<5000	
Acrolein, ug/L	<200	<20	<20	<20	<10000	
Acrylonitrile, ug/L	<200	<20	<20	<20	<10000	
Bromodichloromethane, ug/L	<10	<1	<1	<1	<500	
Bromomethane, ug/L	<10	<1	<1	<1	<500	
Benzene, ug/L	<10	<1	<1	<1	43000	
Bromoform, ug/L	<10	<1	<1	<1	<500	
Chlorobenzene, ug/L	800	110	<1	<1	<500	
Carbon Tetrachloride, ug/L	<10	<1	<1	<1	<500	

Analytical Report

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REPORT OF ANALYTICAL RESULTS

Page 8

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-13	02-500-14	02-500-15	02-500-16	02-500-17
Chloroethane, ug/L	<10	<1	<1	<1	<1	<500
Chloroform, ug/L	<10	<1	<1	<1	<1	<500
Chloromethane, ug/L	<20	<2	<2	<2	<2	<1000
Dibromochloromethane, ug/L	<10	<1	<1	<1	<1	<500
Ethylbenzene, ug/L	20	<1	<1	<1	<1	700
Methylene chloride, ug/L	<10	<1	<1	<1	<1	<500
Trichloroethene, ug/L	<10	<1	<1	<1	<1	<500
Trichlorofluoromethane, ug/L	<10	<1	<1	<1	<1	<500
Toluene, ug/L	<10	1	<1	<1	<1	<500
Tetrachloroethene, ug/L	<10	<1	<1	<1	<1	<500
Vinyl chloride, ug/L	<10	<1	<1	<1	<1	<500
cis-1,3-Dichloropropene, ug/L	<10	<1	<1	<1	<1	<500
trans-1,2-Dichloroethene, ug/L	<10	<1	<1	<1	<1	<500
trans-1,3-Dichloropropene, ug/L	<10	<1	<1	<1	<1	<500
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	---

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90

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3385 N. Campbell Ave., Suite 121
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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 9

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-500-18	02-500-19	02-500-20	02-500-21	02-500-22	
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/02/90	03/02/90	03/02/90	03.02.90	03/06/90	
Dilution Factor, Times 1	1	50	10	10	1	
1,1,1-Trichloroethane, ug/L	<1	<50	<10	<10	<1	
1,1,2,2-Tetrachloroethane, ug/L	<1	<50	<10	<10	<1	
1,1,2-Trichloroethane, ug/L	<1	<50	<10	<10	<1	
1,1-Dichloroethane, ug/L	<1	<50	<10	<10	<1	
1,1-Dichloroethene, ug/L	<1	<50	<10	<10	<1	
1,2-Dichloroethane, ug/L	<1	<50	<10	<10	<1	
1,2-Dichlorobenzene, ug/L	<1	<50	<10	<10	<1	
1,2-Dichloropropane, ug/L	<1	<50	<10	<10	<1	
1,3-Dichlorobenzene, ug/L	<1	<50	<10	<10	<1	
1,4-Dichlorobenzene, ug/L	<1	<50	<10	<10	<1	
2-Chloroethylvinylether, ug/L	<1	<50	<10	<10	<1	
Acetone, ug/L	<10	<500	<100	<100	<10	
Acrolein, ug/L	<20	<1000	<200	<200	<20	
Acrylonitrile, ug/L	<20	<1000	<200	<200	<20	
Bromodichloromethane, ug/L	<1	<50	<10	<10	<1	
Bromomethane, ug/L	<1	<50	<10	<10	<1	
Benzene, ug/L	<1	<50	<10	<10	<1	
Bromoform, ug/L	<1	<50	<10	<10	<1	
Chlorobenzene, ug/L	<1	4000	190	170	<1	
Carbon Tetrachloride, ug/L	<1	<50	<10	<10	<1	

Analytical Report

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 10

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-500-18	02-500-19	02-500-20	02-500-21	02-500-22
Chloroethane, ug/L	<1	<50	<10	<10	<10	<1
Chloroform, ug/L	<1	<50	<10	<10	<10	<1
Chloromethane, ug/L	<2	<100	<20	<20	<20	<2
Dibromochloromethane, ug/L	<1	<50	<10	<10	<10	<1
Ethylbenzene, ug/L	<1	<50	<10	<10	<10	<1
Methylene chloride, ug/L	<1	<50	<10	<10	<10	<1
Trichloroethene, ug/L	<1	<50	<10	<10	<10	<1
Trichlorofluoromethane, ug/L	<1	<50	<10	<10	<10	<1
Toluene, ug/L	<1	<50	<10	<10	<10	<1
Tetrachloroethene, ug/L	<1	<50	<10	<10	<10	<1
Vinyl chloride, ug/L	<1	<50	<10	<10	<10	<1
cis-1,3-Dichloropropene, ug/L	<1	<50	<10	<10	<10	<1
trans-1,2-Dichloroethene, ug/L	<1	<50	<10	<10	<10	<1
trans-1,3-Dichloropropene, ug/L	<1	<50	<10	<10	<10	<1
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	---

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 11

LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
02-500-7	G-11 BC/QC SPK	23 FEB 90
02-500-8	G-11 BC/QC DUP-SPK	23 FEB 90
PARAMETER	02-500-7	02-500-8
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted	02/27/90	02/27/90
Date Analyzed	03/07/90	03/07/90
Dilution Factor, Times 1	1	1
p,p'-DDT, Percent	83	55
BHC, gamma isomer (Lindane), Percent	70	42
Other DDT/BHCs Method 608 (SOP GC 00588)	---	---
VOCs Method 624 (SOP MS 00188)		
Date Analyzed	03/01/90	03/01/90
Dilution Factor, Times 1	10	10
1,1-Dichloroethene, Percent	65	75
Benzene, Percent	80	90
Chlorobenzene, Percent	85	100
Trichloroethene, Percent	80	90
Toluene, Percent	80	90
Other VOCs Method 624 (SOP MS 00188)	---	---

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90

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Tucson, Arizona 85719

CC: Ms. Kathryn Parker

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REPORT OF ANALYTICAL RESULTS

Page 12

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-500-23	Laboratory Control Standard	
PARAMETER		02-500-23
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		02/27/90
Date Analyzed		03/07/90
Dilution Factor, Times 1		1
p,p'-DDD, Percent		92
p,p'-DDE, Percent		92
p,p'-DDT, Percent		98
BHC, alpha isomer, Percent		73
BHC, beta isomer, Percent		86
BHC, delta isomer, Percent		82
BHC, gamma isomer (Lindane), Percent		81
Other DDT/BHCs Method 608 (SOP GC 00588)		---

Analytical Report

LOG NO: G90-02-500

Received: 26 FEB 90

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 13

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-500-23	Laboratory Control Standard	
PARAMETER		02-500-23
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		03/01/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		90
1,1,2,2-Tetrachloroethane, Percent		100
1,1,2-Trichloroethane, Percent		90
1,1-Dichloroethane, Percent		75
1,1-Dichloroethene, Percent		70
1,2-Dichloroethane, Percent		105
1,2-Dichlorobenzene, Percent		95
1,2-Dichloropropane, Percent		80
1,3-Dichlorobenzene, Percent		80
1,4-Dichlorobenzene, Percent		90
2-Chloroethylvinylether, Percent		95
Acetone, Percent		95
Acrolein, Percent		65
Acrylonitrile, Percent		65
Bromodichloromethane, Percent		95
Bromomethane, Percent		60
Benzene, Percent		95
Bromoform, Percent		90
Chlorobenzene, Percent		85
Carbon Tetrachloride, Percent		80
Chloroethane, Percent		70
Chloroform, Percent		80
Chloromethane, Percent		60
Dibromochloromethane, Percent		85

Analytical Report

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Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 14

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-500-23	Laboratory Control Standard	
PARAMETER		02-500-23
Ethylbenzene, Percent	90	
Methylene chloride, Percent	125	
Trichloroethene, Percent	80	
Trichlorofluoromethane, Percent	80	
Toluene, Percent	95	
Tetrachloroethene, Percent	80	
Vinyl chloride, Percent	50	
cis-1,3-Dichloropropene, Percent	85	
trans-1,2-Dichloroethene, Percent	95	
trans-1,3-Dichloropropene, Percent	95	
Other VOCs Method 624 (SOP MS 00188)	---	

Analytical Report

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Received: 26 FEB 90

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Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 15

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-500-24	Laboratory Blank	
PARAMETER		02-500-24
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		02/27/90
Date Analyzed		03/07/90
Dilution Factor, Times 1		1
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04



Analytical Report

LOG NO: G90-02-500

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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 16

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-500-24	Laboratory Blank	
PARAMETER		02-500-24
<hr/>		
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		03/01/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Bromoform, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Chloroform, ug/L		<1
Chloromethane, ug/L		<2
Dibromochloromethane, ug/L		<1

Analytical Report

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Received: 26 FEB 90

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Hargis & Associates, Inc.
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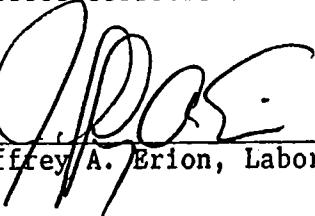
CC: Ms. Kathryn Parker

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REPORT OF ANALYTICAL RESULTS

Page 17

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-500-24	Laboratory Blank	02-500-24
PARAMETER		
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Vinyl chloride, ug/L	<1	
cis-1,3-Dichloropropene, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	


Jeffrey A. Erion, Laboratory Manager

Analytical Report

AMENDED REPORT

3-19-90

LOG NO: G90-02-510

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
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Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-510-1	02-510-2	02-510-3	02-510-4	02-510-5	
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted	02/27/90	02/27/90	02/27/90	02/27/90	02/27/90	
Date Analyzed	03/08/90	03/08/90	03/08/90	03/08/90	03/08/90	
Dilution Factor, Times 1	1	1	1	1	1	
Total BHC Isomers, ug/L	0.1	0.1	<0.04	<0.04	<0.04	
Total DDT Metabolites, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
p,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
o,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
BHC, alpha isomer, ug/L	<0.4	<0.4	<0.04	<0.04	<0.8	
BHC, beta isomer, ug/L	0.1	0.1	<0.04	<0.04	<0.04	
BHC, delta isomer, ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.04	<0.04	<0.04	

Analytical Report

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CC: Ms. Kathryn Parker

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REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-510-1	02-510-2	02-510-3	02-510-4	02-510-5	
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/09/90	03/08/90	03/07/90	03/07/90	03/07/90	
Dilution Factor, Times 1	500	500	1	100	100	
1,1,1-Trichloroethane, ug/L	<500	<500	<1	<100	<100	
1,1,2,2-Tetrachloroethane, ug/L	<500	<500	<1	<100	<100	
1,1,2-Trichloroethane, ug/L	<500	<500	<1	<100	<100	
1,1-Dichloroethane, ug/L	<500	<500	<1	<100	<100	
1,1-Dichloroethene, ug/L	<500	<500	<1	<100	<100	
1,2-Dichloroethane, ug/L	<500	<500	<1	500	<100	
1,2-Dichlorobenzene, ug/L	<500	<500	<1	<100	<100	
1,2-Dichloropropane, ug/L	<500	<500	<1	<100	<100	
1,3-Dichlorobenzene, ug/L	<500	<500	<1	<100	<100	
1,4-Dichlorobenzene, ug/L	<500	<500	<1	<100	<100	
2-Chloroethylvinylether, ug/L	<500	<500	<1	<100	<100	
Acetone, ug/L	<5000	<5000	<10	<1000	<1000	
Acrolein, ug/L	<10000	<10000	<20	<2000	<2000	
Acrylonitrile, ug/L	<10000	<10000	<20	<2000	<2000	
Bromodichloromethane, ug/L	<500	<500	<1	<100	<100	
Bromomethane, ug/L	<500	<500	<1	<100	<100	
Benzene, ug/L	<500	<500	<1	9200	11000	
Bromoform, ug/L	<500	<500	<1	<100	<100	
Chlorobenzene, ug/L	45000	42000	<1	900	5700	
Carbon Tetrachloride, ug/L	<500	<500	<1	<100	<100	

Analytical Report

LOG NO: G90-02-510

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-510-1	02-510-2	02-510-3	02-510-4	02-510-5	
Chloroethane, ug/L	<500	<500	<1	<100	<100	24 FEB 90
Chloroform, ug/L	<500	<500	<1	<100	5700	24 FEB 90
Chloromethane, ug/L	<1000	<1000	<2	<200	<200	24 FEB 90
Dibromochloromethane, ug/L	<500	<500	<1	<100	<100	24 FEB 90
Ethylbenzene, ug/L	<500	<500	<1	1500	1300	24 FEB 90
Methylene chloride, ug/L	<500	<500	<1	<100	<100	
Trichloroethene, ug/L	<500	<500	<1	<100	<100	
Trichlorofluoromethane, ug/L	<500	<500	<1	<100	<100	
Toluene, ug/L	<500	<500	<1	200	8100	
Tetrachloroethene, ug/L	<500	<500	<1	<100	<100	
Vinyl chloride, ug/L	<500	<500	<1	<100	<100	
cis-1,3-Dichloropropene, ug/L	<500	<500	<1	<100	<100	
trans-1,2-Dichloroethene, ug/L	<500	<500	<1	<100	<100	
trans-1,3-Dichloropropene, ug/L	<500	<500	<1	<100	<100	
Other VOCs Method 624 (SOP MS 00188)---	---	---	---	---	---	
Semi-Quantified Results **						
Trimethylbenzene, ug/L	---	---	---	1000	1000	

** Quantification based upon comparison of total ion count of the compound with that of the nearest internal standard.

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-510-6	02-510-7	02-510-8	02-510-9	02-510-10
DDT/BHCs Method 608 (SOP GC 00588)						
Date Extracted		02/27/90	02/27/90	02/27/90	02/27/90	02/27/90
Date Analyzed		03/08/90	03/09/90	03/09/90	03/09/90	03/09/90
Dilution Factor, Times 1		1	1	20	1	1
Total BHC Isomers, ug/L		0.29	0.13	<0.8	<0.04	2.2
Total DDT Metabolites, ug/L		<0.04	<0.04	14	<0.04	<0.04
p,p'-DDD, ug/L		<0.04	<0.04	11	<0.04	<0.04
p,p'-DDE, ug/L		<0.04	<0.04	0.82	<0.04	<0.04
p,p'-DDT, ug/L		<0.04	<0.04	1.9	<0.04	<0.04
o,p'-DDD, ug/L		<0.04	<0.04	<0.8	<0.04	<0.04
o,p'-DDE, ug/L		<0.04	<0.04	<0.8	<0.04	<0.04
o,p'-DDT, ug/L		<0.04	<0.04	<0.8	<0.04	<0.04
BHC, alpha isomer, ug/L		0.29	0.13	<0.8	<0.04	<0.4
BHC, beta isomer, ug/L		<0.04	<0.04	<0.8	<0.04	0.73
BHC, delta isomer, ug/L		<0.04	<0.04	<0.8	<0.04	0.25
BHC, gamma isomer (Lindane), ug/L		<0.04	<0.04	<0.8	<0.04	1.2

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-510-6	02-510-7	02-510-8	02-510-9	02-510-10
02-510-6	MW-13					24 FEB 90
02-510-7	BF-6					24 FEB 90
02-510-8	BF-9					24 FEB 90
02-510-9	G-4					24 FEB 90
02-510-10	MW-6					24 FEB 90
VOCs Method 624 (SOP MS 00188)		03/08/90	03/08/90	03/08/90	03/08/90	03/08/90
Date Analyzed		03/08/90	03/08/90	03/08/90	03/08/90	03/08/90
Dilution Factor, Times 1	200	100	100	25	100	
1,1,1-Trichloroethane, ug/L	<200	<100	<100	<25	<100	
1,1,2,2-Tetrachloroethane, ug/L	<200	<100	<100	<25	<100	
1,1,2-Trichloroethane, ug/L	<200	<100	<100	<25	<100	
1,1-Dichloroethane, ug/L	<200	<100	<100	<25	<100	
1,1-Dichloroethene, ug/L	<200	<100	<100	<25	<100	
1,2-Dichloroethane, ug/L	<200	<100	<100	<25	<100	
1,2-Dichlorobenzene, ug/L	<200	<100	<100	<25	<100	
1,2-Dichloropropane, ug/L	<200	<100	<100	<25	<100	
1,3-Dichlorobenzene, ug/L	<200	<100	<100	<25	<100	
1,4-Dichlorobenzene, ug/L	<200	<100	<100	<25	100	
2-Chloroethylvinylether, ug/L	<200	<100	<100	<25	<100	
Acetone, ug/L	<2000	<1000	<1000	<250	<1000	
Acrolein, ug/L	<4000	<2000	<2000	<500	<2000	
Acrylonitrile, ug/L	<4000	<2000	<2000	<500	<2000	
Bromodichloromethane, ug/L	<200	<100	<100	<25	<100	
Bromomethane, ug/L	<200	<100	<100	<25	<100	
Benzene, ug/L	18000	200	<100	<25	1400	
Bromoform, ug/L	<200	<100	<100	<25	<100	
Chlorobenzene, ug/L	2700	28000	11000	1600	13000	
Carbon Tetrachloride, ug/L	<200	<100	<100	<25	990	

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-510-6	02-510-7	02-510-8	02-510-9	02-510-10
Chloroethane, ug/L	<200	<100	<100	<25	<100	
Chloroform, ug/L	1000	<100	260	<25	8300	
Chloromethane, ug/L	<400	<200	<200	<50	<200	
Dibromochloromethane, ug/L	<200	<100	<100	<25	<100	
Ethylbenzene, ug/L	1700	<100	<100	<25	<100	
Methylene chloride, ug/L	<200	<100	<100	<25	<100	
Trichloroethene, ug/L	490	<100	<100	<25	300	
Trichlorofluoromethane, ug/L	<200	<100	<100	<25	<100	
Toluene, ug/L	12000	<100	<100	<25	<100	
Tetrachloroethene, ug/L	<200	<100	<100	<25	3700	
Vinyl chloride, ug/L	<200	<100	<100	<25	<100	
cis-1,3-Dichloropropene, ug/L	<200	<100	<100	<25	<100	
trans-1,2-Dichloroethene, ug/L	<200	<100	<100	<25	<100	
trans-1,3-Dichloropropene, ug/L	<200	<100	<100	<25	<100	
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-510-11	02-510-12	02-510-13	02-510-14	02-510-15	
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/07/90	03/08/90	03/09/90	03/07/90	03/09/90	
Dilution Factor, Times 1	1	25	100	1	250	
1,1,1-Trichloroethane, ug/L	<1	<25	<100	<1	<250	
1,1,2,2-Tetrachloroethane, ug/L	<1	<25	<100	<1	<250	
1,1,2-Trichloroethane, ug/L	<1	<25	<100	<1	<250	
1,1-Dichloroethane, ug/L	<1	<25	<100	<1	<250	
1,1-Dichloroethene, ug/L	<1	<25	<100	<1	<250	
1,2-Dichloroethane, ug/L	<1	<25	<100	<1	<250	
1,2-Dichlorobenzene, ug/L	<1	<25	<100	<1	<250	
1,2-Dichloropropane, ug/L	<1	<25	<100	<1	<250	
1,3-Dichlorobenzene, ug/L	<1	<25	<100	<1	<250	
1,4-Dichlorobenzene, ug/L	<1	<25	<100	<1	<250	
2-Chloroethylvinylether, ug/L	<1	<25	<100	<1	<250	
Acetone, ug/L	<10	<250	<1000	<10	2500	
Acrolein, ug/L	<20	<500	<2000	<20	<5000	
Acrylonitrile, ug/L	<20	<500	<2000	<20	<5000	
Bromodichloromethane, ug/L	<1	<25	<100	<1	<250	
Bromomethane, ug/L	<1	<25	<100	<1	<250	
Benzene, ug/L	<1	<25	<100	<1	<250	
Bromoform, ug/L	<1	<25	<100	<1	<250	
Chlorobenzene, ug/L	<1	2200	1800	<1	11000	
Carbon Tetrachloride, ug/L	<1	<25	<100	<1	<250	

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER		02-510-11	02-510-12	02-510-13	02-510-14	02-510-15
Chloroethane, ug/L	<1	<25	<100	<1	<250	
Chloroform, ug/L	<1	<25	<100	<1	<250	
Chloromethane, ug/L	<2	<50	<200	<2	<500	
Dibromochloromethane, ug/L	<1	<25	<100	<1	<250	
Ethylbenzene, ug/L	<1	<25	<100	<1	<250	
Methylene chloride, ug/L	2	<25	<100	<1	<250	
Trichloroethene, ug/L	<1	<25	<100	<1	<250	
Trichlorofluoromethane, ug/L	<1	<25	<100	<1	<250	
Toluene, ug/L	<1	<25	<100	<1	<250	
Tetrachloroethene, ug/L	<1	<25	<100	<1	<250	
Vinyl chloride, ug/L	<1	<25	<100	<1	<250	
cis-1,3-Dichloropropene, ug/L	<1	<25	<100	<1	<250	
trans-1,2-Dichloroethene, ug/L	<1	<25	<100	<1	<250	
trans-1,3-Dichloropropene, ug/L	<1	<25	<100	<1	<250	
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED			
PARAMETER		02-510-16	02-510-17	02-510-18	02-510-19
02-510-16	LW-2			24 FEB 90	
02-510-17	LG-2			24 FEB 90	
02-510-18	MW-26			24 FEB 90	
02-510-19	MW-7			24 FEB 90	
VOCs Method 624 (SOP MS 00188)					
Date Analyzed		03/08/90	03/08/90	03/08/90	03/08/90
Dilution Factor, Times 1		1	5	1	500
1,1,1-Trichloroethane, ug/L		<1	<5	<1	<500
1,1,2,2-Tetrachloroethane, ug/L		<1	<5	<1	<500
1,1,2-Trichloroethane, ug/L		<1	<5	<1	<500
1,1-Dichloroethane, ug/L		<1	<5	<1	<500
1,1-Dichloroethene, ug/L		<1	<5	<1	<500
1,2-Dichloroethane, ug/L		<1	<5	<1	3800
1,2-Dichlorobenzene, ug/L		<1	<5	<1	<500
1,2-Dichloropropane, ug/L		<1	<5	<1	<500
1,3-Dichlorobenzene, ug/L		<1	<5	<1	<500
1,4-Dichlorobenzene, ug/L		<1	<5	<1	<500
2-Chloroethylvinylether, ug/L		<1	<5	<1	<500
Acetone, ug/L		<10	<50	<10	<5000
Acrolein, ug/L		<20	<100	<20	<10000
Acrylonitrile, ug/L		<20	<100	<20	<10000
Bromodichloromethane, ug/L		<1	<5	<1	<500
Bromomethane, ug/L		<1	<5	<1	<500
Benzene, ug/L		<1	<5	<1	28000
Bromoform, ug/L		<1	<5	<1	<500
Chlorobenzene, ug/L		<1	180	9	630
Carbon Tetrachloride, ug/L		<1	<5	<1	<500
Chloroethane, ug/L		<1	<5	<1	<500

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED			
PARAMETER		02-510-16	02-510-17	02-510-18	02-510-19
02-510-16	LW-2				24 FEB 90
02-510-17	LG-2				24 FEB 90
02-510-18	MW-26				24 FEB 90
02-510-19	MW-7				24 FEB 90
Chloroform, ug/L		<1	<5	<1	840
Chloromethane, ug/L		<2	<10	<2	<1000
Dibromochloromethane, ug/L		<1	<5	<1	<500
Ethylbenzene, ug/L		<1	<5	<1	2200
Methylene chloride, ug/L		<1	<5	<1	<500
Trichloroethene, ug/L		<1	<5	<1	<500
Trichlorofluoromethane, ug/L		<1	<5	<1	34000
Toluene, ug/L		<1	<5	<1	<500
Tetrachloroethene, ug/L		<1	<5	<1	<500
Vinyl chloride, ug/L		<1	<5	<1	<500
cis-1,3-Dichloropropene, ug/L		<1	<5	<1	<500
trans-1,2-Dichloroethene, ug/L		<1	<5	<1	<500
trans-1,3-Dichloropropene, ug/L		<1	<5	<1	<500
Other VOCs Method 624 (SOP MS 00188)		---	---	---	---

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LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED	
02-510-20	BF-7 BC/QC SPK		24 FEB 90
02-510-21	BF-7 BC/QC DUP-SPK		24 FEB 90
PARAMETER		02-510-20	02-510-21
DDT/BHCs Method 608 (SOP GC 00588)		02/27/90	02/27/90
Date Extracted		03/09/90	03/09/90
Date Analyzed		1	1
Dilution Factor, Times 1		109	110
p,p'-DDT, Percent		85	101
BHC, gamma isomer (Lindane), Percent		---	---
Other DDT/BHCs Method 608 (SOP GC 00588)		---	---
VOCs Method 624 (SOP MS 00188)		03/09/90	03/09/90
Date Analyzed		500	500
Dilution Factor, Times 1		66	57
1,1-Dichloroethene, Percent		100	85
Benzene, Percent		120	78
Chlorobenzene, Percent		100	85
Trichloroethene, Percent		100	85
Toluene, Percent		---	---
Other VOCs Method 624 (SOP MS 00188)		---	---

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REPORT OF ANALYTICAL RESULTS

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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-510-22	Laboratory Control Standard	
PARAMETER		02-510-22
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		02/27/90
Date Analyzed		03/08/90
Dilution Factor, Times 1		1
p,p'-DDD, Percent		93
p,p'-DDE, Percent		92
p,p'-DDT, Percent		107
BHC, alpha isomer, Percent		74
BHC, beta isomer, Percent		88
BHC, delta isomer, Percent		86
BHC, gamma isomer (Lindane), Percent		87
Other DDT/BHCs Method 608 (SOP GC 00588)		---

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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-510-22	Laboratory Control Standard	
PARAMETER		02-510-22
VOCs Method 624 (SOP MS 00188)		03/09/90
Date Analyzed		03/09/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		80
1,1,2,2-Tetrachloroethane, Percent		98
1,1,2-Trichloroethane, Percent		105
1,1-Dichloroethane, Percent		82
1,1-Dichloroethene, Percent		75
1,2-Dichloroethane, Percent		90
1,2-Dichlorobenzene, Percent		100
1,2-Dichloropropane, Percent		88
1,3-Dichlorobenzene, Percent		90
1,4-Dichlorobenzene, Percent		98
2-Chloroethylvinylether, Percent		95
Acetone, Percent		78
Acrolein, Percent		68
Acrylonitrile, Percent		78
Bromodichloromethane, Percent		90
Bromomethane, Percent		45
Benzene, Percent		88
Bromoform, Percent		90
Chlorobenzene, Percent		92
Carbon Tetrachloride, Percent		88
Chloroethane, Percent		58
Chloroform, Percent		90
Chloromethane, Percent		35
Dibromochloromethane, Percent		95

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LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-510-22	Laboratory Control Standard	02-510-22
PARAMETER		
Ethylbenzene, Percent	85	
Methylene chloride, Percent	130	
Trichloroethene, Percent	85	
Trichlorofluoromethane, Percent	77	
Toluene, Percent	85	
Tetrachloroethene, Percent	88	
Vinyl chloride, Percent	32	
cis-1,3-Dichloropropene, Percent	80	
trans-1,2-Dichloroethene, Percent	85	
trans-1,3-Dichloropropene, Percent	90	
Other VOCs Method 624 (SOP MS 00188)	---	

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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-510-23	Laboratory Blank	02-510-23
PARAMETER		
DDT/BHCs Method 608 (SOP GC 00588)		
Date Extracted		02/27/90
Date Analyzed		03/08/90
Dilution Factor, Times 1		1
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04

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LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-510-23	Laboratory Blank	
PARAMETER		02-510-23
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		03/09/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Bromoform, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Chloroform, ug/L		<1
Chloromethane, ug/L		<2
Dibromochloromethane, ug/L		<1

Analytical Report

LOG NO: G90-02-510

Received: 26 FEB 90

Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 17

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-510-23	Laboratory Blank	02-510-23
PARAMETER		
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Vinyl chloride, ug/L	<1	
cis-1,3-Dichloropropene, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Please note the elevated detection limits on
G90-02-510-1,5,10. These were raised for
alpha-BHC, due to matrix interference. 03/15/90.

--G. Havalias.

Amended report 03/16/90 due to incorrect date
analyzed for sample G90-02-510-11.

L. Brack

Amended report 03/19/90 due to incorrect 608 date
analyzed for samples G90-02-510-7, -8, -9, -10,
-20 and -21. L. Brack

Jeffrey A. Erlon
Jeffrey A. Erlon, Laboratory Manager



Analytical Report

801 REPORT

LOG NO: G90-02-512

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
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CC: Ms. Kathryn Parker

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REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-512-1	02-512-2	02-512-3	02-512-4	02-512-5	
DDT/BHCs Method 608 (SOP GC 00588)						
Date Analyzed	03/09/90	03/09/90	03/09/90	03/09/90	---	
Date Extracted	03/02/90	03/02/90	03/02/90	03/02/90	---	
Dilution Factor, Times 1	1	1	1	10	---	
Total BHC Isomers, ug/L	<0.04	<0.04	<0.04	33	---	
Total DDT Metabolites, ug/L	<0.04	<0.04	<0.04	<0.04	---	
p,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	---	
p,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	---	
p,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	---	
o,p'-DDD, ug/L	<0.04	<0.04	<0.04	<0.04	---	
o,p'-DDE, ug/L	<0.04	<0.04	<0.04	<0.04	---	
o,p'-DDT, ug/L	<0.04	<0.04	<0.04	<0.04	---	
BHC, alpha isomer, ug/L	<0.04	<0.04	<0.04	8.4	---	
BHC, beta isomer, ug/L	<0.04	<0.04	<0.04	6.0	---	
BHC, delta isomer, ug/L	<0.04	<0.04	<0.04	3.2	---	
BHC, gamma isomer (Lindane), ug/L	<0.04	<0.04	<0.04	15	---	

Analytical Report

REVISED REPORT

LOG NO: G90-02-512

Received: 26 FEB 90

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Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-512-1	02-512-2	02-512-3	02-512-4	02-512-5	
VOCs Method 624 (SOP MS 00188)						
Date Analyzed	03/09/90	03/09/90	03/09/90	03/09/90	03/09/90	
Date Extracted	03/09/90	03/09/90	03/09/90	03/09/90	03/09/90	
Dilution Factor, Times 1	1	1	1	200	1	
1,1,1-Trichloroethane, ug/L	<1	<1	<1	<200	<1	
1,1,2,2-Tetrachloroethane, ug/L	<1	<1	<1	<200	<1	
1,1,2-Trichloroethane, ug/L	<1	<1	<1	<200	<1	
1,1-Dichloroethane, ug/L	<1	<1	<1	<200	<1	
1,1-Dichloroethene, ug/L	<1	<1	<1	<200	<1	
1,2-Dichloroethane, ug/L	<1	<1	<1	<200	<1	
1,2-Dichlorobenzene, ug/L	<1	<1	<1	<200	<1	
1,2-Dichloropropane, ug/L	<1	<1	<1	<200	<1	
1,3-Dichlorobenzene, ug/L	<1	<1	<1	<200	<1	
1,4-Dichlorobenzene, ug/L	<1	<1	<1	<200	<1	
2-Chloroethylvinylether, ug/L	<1	<1	<1	<200	<1	
Acetone, ug/L	<10	<10	<10	<2000	<10	
Acrolein, ug/L	<20	<20	<20	<4000	<20	
Acrylonitrile, ug/L	<20	<20	<20	<4000	<20	
Bromodichloromethane, ug/L	<1	<1	<1	<200	<1	
Bromomethane, ug/L	<1	<1	<1	<200	<1	
Benzene, ug/L	<1	<1	<1	2100	<1	
Bromoform, ug/L	<1	<1	<1	<200	<1	
Chlorobenzene, ug/L	<1	<1	<1	22000	<1	

Analytical Report

REVISED REPORT

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Received: 26 FEB 90
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Hargis & Associates, Inc.
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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED				
PARAMETER	02-512-1	02-512-2	02-512-3	02-512-4	02-512-5	
Carbon Tetrachloride, ug/L	<1	<1	<1	<200	<1	
Chloroethane, ug/L	<1	<1	<1	<200	<1	
Chloroform, ug/L	<1	<1	<1	1200	<1	
Chloromethane, ug/L	<2	<2	<2	<400	<2	
Dibromochloromethane, ug/L	<1	<1	<1	<200	<1	
Ethylbenzene, ug/L	<1	<1	<1	<200	<1	
Methylene chloride, ug/L	<1	<1	<1	<200	<1	
Trichloroethene, ug/L	<1	<1	<1	<200	<1	
Trichlorofluoromethane, ug/L	<1	<1	<1	<200	<1	
Toluene, ug/L	<1	<1	<1	<200	<1	
Tetrachloroethene, ug/L	<1	<1	<1	800	<1	
Vinyl chloride, ug/L	<1	<1	<1	<200	<1	
cis-1,3-Dichloropropene, ug/L	<1	<1	<1	<200	<1	
trans-1,2-Dichloroethene, ug/L	<1	<1	<1	<200	<1	
trans-1,3-Dichloropropene, ug/L	<1	<1	<1	<200	<1	
Other VOCs Method 624 (SOP MS 00188)	---	---	---	---	---	

Analytical Report

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FEB 23 1990

LOG NO: G90-02-512

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED	
PARAMETER		02-512-6	02-512-7
02-512-6	MW-23	25 FEB 90	
02-512-7	MW-24	25 FEB 90	
VOCs Method 624 (SOP MS 00188)			
Date Analyzed		03/09/90	03/09/90
Date Extracted		03/09/90	03/09/90
Dilution Factor, Times 1		1	1
1,1,1-Trichloroethane, ug/L		<1	<1
1,1,2,2-Tetrachloroethane, ug/L		<1	<1
1,1,2-Trichloroethane, ug/L		<1	<1
1,1-Dichloroethane, ug/L		<1	<1
1,1-Dichloroethene, ug/L		<1	<1
1,2-Dichloroethane, ug/L		<1	<1
1,2-Dichlorobenzene, ug/L		<1	<1
1,2-Dichloropropane, ug/L		<1	<1
1,3-Dichlorobenzene, ug/L		<1	<1
1,4-Dichlorobenzene, ug/L		<1	<1
2-Chloroethylvinylether, ug/L		<1	<1
Acetone, ug/L		<10	<10
Acrolein, ug/L		<20	<20
Acrylonitrile, ug/L		<20	<20
Bromodichloromethane, ug/L		<1	<1
Bromomethane, ug/L		<1	<1
Benzene, ug/L		<1	<1
Bromoform, ug/L		<1	<1
Chlorobenzene, ug/L		<1	<1
Carbon Tetrachloride, ug/L		<1	<1
Chloroethane, ug/L		<1	<1
Chloroform, ug/L		<1	2

Analytical Report

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LOG NO: G90-02-512

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
02-512-6	MW-23	25 FEB 90
02-512-7	MW-24	25 FEB 90
PARAMETER	02-512-6	02-512-7
Chloromethane, ug/L	<2	<2
Dibromochloromethane, ug/L	<1	<1
Ethylbenzene, ug/L	<1	<1
Methylene chloride, ug/L	<1	<1
Trichloroethene, ug/L	<1	<1
Trichlorofluoromethane, ug/L	<1	<1
Toluene, ug/L	<1	<1
Tetrachloroethene, ug/L	<1	<1
Vinyl chloride, ug/L	<1	<1
cis-1,3-Dichloropropene, ug/L	<1	<1
trans-1,2-Dichloroethene, ug/L	<1	<1
trans-1,3-Dichloropropene, ug/L	<1	<1
Other VOCs Method 624 (SOP MS 00188)	---	---

Analytical Report

ANALYTICAL REPORT

LOG NO: G90-02-512

Received: 26 FEB 90

Reported: 12 MAR 90

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3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED
02-512-8	LW-1 BC/QC SPK	25 FEB 90
02-512-9	LW-1 BC/QC DUP-SPK	25 FEB 90
PARAMETER		02-512-8 02-512-9
DDT/BHCs Method 608 (SOP GC 00588)		
Date Analyzed	03/09/90	03/09/90
Date Extracted	03/02/90	03/02/90
Dilution Factor, Times 1	1	1
p,p'-DDT, Percent	79	80
BHC, gamma isomer (Lindane), Percent	54	59
Other DDT/BHCs Method 608 (SOP GC 00588)	---	---

Analytical Report

ANALYTICAL REPORT

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Ms. Lanae Raymond
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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 7

LOG NO	SAMPLE DESCRIPTION, MATRIX SPIKE SAMPLES	DATE SAMPLED	
02-512-8	LW-1 BC/QC SPK		25 FEB 90
02-512-9	LW-1 BC/QC DUP-SPK		25 FEB 90
PARAMETER		02-512-8	02-512-9
VOCs Method 624 (SOP MS 00188)			
Date Analyzed		03/09/90	03/09/90
Date Extracted		03/09/90	03/09/90
Dilution Factor, Times 1		1	1
1,1-Dichloroethene, Percent		101	89
Benzene, Percent		108	97
Chlorobenzene, Percent		124	114
Trichloroethene, Percent		108	99
Toluene, Percent		104	96
Other VOCs Method 624 (SOP MS 00188)		---	---

Analytical Report

RECEIVED REPORT

LOG NO: G90-02-512

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 8

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-512-10	Laboratory Control Standard	
PARAMETER		02-512-10
DDT/BHCs Method 608 (SOP GC 00588)		
Date Analyzed		03/09/90
Date Extracted		03/02/90
Dilution Factor, Times 1		1
p,p'-DDD, Percent		64
p,p'-DDE, Percent		67
p,p'-DDT, Percent		74
BHC, alpha isomer, Percent		55
BHC, beta isomer, Percent		87
BHC, delta isomer, Percent		66
BHC, gamma isomer (Lindane), Percent		93
Other DDT/BHCs Method 608 (SOP GC 00588)		---

Analytical Report

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FEB 26 1990

LOG NO: G90-02-512

Received: 26 FEB 90
Reported: 12 MAR 90

Ms. Lanae Raymond
Hargis & Associates, Inc.
3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 9

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-512-10	Laboratory Control Standard	
PARAMETER		02-512-10
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		03/09/90
Date Extracted		03/09/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, Percent		101
1,1,2,2-Tetrachloroethane, Percent		114
1,1,2-Trichloroethane, Percent		133
1,1-Dichloroethane, Percent		101
1,1-Dichloroethene, Percent		94
1,2-Dichloroethane, Percent		111
1,2-Dichlorobenzene, Percent		113
1,2-Dichloropropane, Percent		106
1,3-Dichlorobenzene, Percent		109
1,4-Dichlorobenzene, Percent		124
2-Chloroethylvinylether, Percent		119
Acetone, Percent		115
Acrolein, Percent		136
Acrylonitrile, Percent		124
Bromodichloromethane, Percent		103
Bromomethane, Percent		119
Benzene, Percent		109
Bromoform, Percent		102
Chlorobenzene, Percent		112
Carbon Tetrachloride, Percent		104
Chloroethane, Percent		113
Chloroform, Percent		108
Chloromethane, Percent		90

Analytical Report

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LOG NO: G90-02-512

Received: 26 FEB 90

Reported: 12 MAR 90

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3385 N. Campbell Ave., Suite 121
Tucson, Arizona 85719

CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 10

LOG NO	SAMPLE DESCRIPTION, REAGENT WATER SAMPLES	DATE SAMPLED
02-512-10	Laboratory Control Standard	
PARAMETER		02-512-10
Dibromochloromethane, Percent	102	
Ethylbenzene, Percent	105	
Methylene chloride, Percent	114	
Trichloroethene, Percent	108	
Trichlorofluoromethane, Percent	92	
Toluene, Percent	107	
Tetrachloroethene, Percent	108	
Vinyl chloride, Percent	103	
cis-1,3-Dichloropropene, Percent	101	
trans-1,2-Dichloroethene, Percent	105	
trans-1,3-Dichloropropene, Percent	92	
Other VOCs Method 624 (SOP MS 00188)	---	

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REPORT OF ANALYTICAL RESULTS

Page 11

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-512-11	Laboratory Blank	02-512-11
PARAMETER		
DDT/BHCs Method 608 (SOP GC 00588)		
Date Analyzed		03/08/90
Date Extracted		03/02/90
Dilution Factor, Times 1		1
Total BHC Isomers, ug/L		<0.04
Total DDT Metabolites, ug/L		<0.04
p,p'-DDD, ug/L		<0.04
p,p'-DDE, ug/L		<0.04
p,p'-DDT, ug/L		<0.04
o,p'-DDD, ug/L		<0.04
o,p'-DDE, ug/L		<0.04
o,p'-DDT, ug/L		<0.04
BHC, alpha isomer, ug/L		<0.04
BHC, beta isomer, ug/L		<0.04
BHC, delta isomer, ug/L		<0.04
BHC, gamma isomer (Lindane), ug/L		<0.04

Analytical Report

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FEB 26 1990

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REPORT OF ANALYTICAL RESULTS

Page 12

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-512-11	Laboratory Blank	
PARAMETER		02-512-11
VOCs Method 624 (SOP MS 00188)		
Date Analyzed		03/09/90
Date Extracted		03/09/90
Dilution Factor, Times 1		1
1,1,1-Trichloroethane, ug/L		<1
1,1,2,2-Tetrachloroethane, ug/L		<1
1,1,2-Trichloroethane, ug/L		<1
1,1-Dichloroethane, ug/L		<1
1,1-Dichloroethene, ug/L		<1
1,2-Dichloroethane, ug/L		<1
1,2-Dichlorobenzene, ug/L		<1
1,2-Dichloropropane, ug/L		<1
1,3-Dichlorobenzene, ug/L		<1
1,4-Dichlorobenzene, ug/L		<1
2-Chloroethylvinylether, ug/L		<1
Acetone, ug/L		<10
Acrolein, ug/L		<20
Acrylonitrile, ug/L		<20
Bromodichloromethane, ug/L		<1
Bromomethane, ug/L		<1
Benzene, ug/L		<1
Bromoform, ug/L		<1
Chlorobenzene, ug/L		<1
Carbon Tetrachloride, ug/L		<1
Chloroethane, ug/L		<1
Chloroform, ug/L		<1
Chloromethane, ug/L		<2

Analytical Report

LOG NO: G90-02-512

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Reported: 12 MAR 90

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Hargis & Associates, Inc.
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CC: Ms. Kathryn Parker

Project: 218.2

REPORT OF ANALYTICAL RESULTS

Page 13

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
02-512-11	Laboratory Blank	02-512-11
PARAMETER		02-512-11
Dibromochloromethane, ug/L	<1	
Ethylbenzene, ug/L	<1	
Methylene chloride, ug/L	<1	
Trichloroethene, ug/L	<1	
Trichlorofluoromethane, ug/L	<1	
Toluene, ug/L	<1	
Tetrachloroethene, ug/L	<1	
Vinyl chloride, ug/L	<1	
cis-1,3-Dichloropropene, ug/L	<1	
trans-1,2-Dichloroethene, ug/L	<1	
trans-1,3-Dichloropropene, ug/L	<1	
Other VOCs Method 624 (SOP MS 00188)	---	

Amended report 03/19/90 due to incorrect date
analyzed report for sample -2. L. Brack

Linda Brack AAE
Jeffrey A. Erion, Laboratory Manager

Appendix I



HARGIS + ASSOCIATES, INC.

APPENDIX I

**ANALYTICAL TECHNOLOGIES, INC. RAW ANALYTICAL DATA
FOR LABORATORY SPLIT SAMPLES, FROM FEBRUARY 1990
QUARTERLY GROUNDWATER SAMPLING ROUND**



HARGIS + ASSOCIATES, INC.

APPENDIX I

TABLE OF CONTENTS

REPORT LOG NO: 002271
REPORT LOG NO: 002292
REPORT LOG NO: 002304
REPORT LOG NO: 002306



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00227101

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : MW-25
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/22/90
DATE RECEIVED : 02/22/90
DATE EXTRACTED : N/A
DATE ANALYZED : 02/27/90
UNITS : UG/L
DILUTION FACTOR : 10

COMPOUNDS	RESULTS
CHLOROMETHANE	<100
BROMOMETHANE	<100
VINYL CHLORIDE	<10
CHLOROETHANE	<10
METHYLENE CHLORIDE	<50
ACETONE	<100
CARBON DISULFIDE	<10
1,1-DICHLOROETHENE	<10
1,1-DICHLOROETHANE	<10
1,2-DICHLOROETHENE (TOTAL)	<10
CHLOROFORM	490
1,2-DICHLOROETHANE	150
2-BUTANONE (MEK)	<100
1,1,1-TRICHLOROETHANE	<10
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<100
BROMODICHLOROMETHANE	<10
1,1,2,2-TETRACHLOROETHANE	<10
1,2-DICHLOROPROPANE	<10
CIS-1,3-DICHLOROPROPENE	<10
TRICHLOROETHENE	<10
DIBROMOCHLOROMETHANE	<10
1,1,2 TRICHLOROETHANE	<10
BENZENE	1900
TRANS-1,3-DICHLOROPROPENE	<10
2-CHLOROETHYL VINYL ETHER	<100
BROMOFORM	<50
2-HEXANONE (MBK)	<100
4-METHYL-2-PENTANONE (MIBK)	<100
TETRACHLOROETHENE	<10
TOLUENE	1900
CHLOROBENZENE	1000
ETHYL BENZENE	47
STYRENE	<10
TOTAL XYLENES	1800
DICHLOROBENZENES	<50

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	114
BFB (%)	114
TOLUENE-D8 (%)	109



Analytical Technologies ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 00227101

MATRIX : WATER

UNITS : UG/L

COMPOUNDS	RESULTS
200 ALIPHATIC HYDROCARBON C4	2000
342 CYCLOPENTANE	400
376 PENTANE	500
393 HEXENE	400



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00227101

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : MW-25
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/22/90
DATE RECEIVED : 02/22/90
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : 10

COMPOUNDS	RESULTS
ALDRIN	<0.50
ALPHA - BHC	<0.10
BETA - BHC	<0.10
GAMMA-BHC (LINDANE)	0.15
DELTA - BHC	<0.10
CHLORDANE	<5.0
P, P'-DDD	<0.20
P, P'-DDE	<0.20
P, P'-DDT	<0.20
DIELDRIN	<1.0
ENDOSULFAN I	<0.50
ENDOSULFAN II	<1.0
ENDOSULFAN SULFATE	<1.0
ENDRIN	<1.0
ENDRIN KETONE	<1.0
HEPTACHLOR	<0.50
HEPTACHLOR EPOXIDE	<0.50
TOXAPHENE	<10
METHOXYCHLOR	<5.0
AROCLOR 1016	<5.0
AROCLOR 1221	<5.0
AROCLOR 1232	<5.0
AROCLOR 1242	<5.0
AROCLOR 1248	<5.0
AROCLOR 1254	<5.0
AROCLOR 1260	<5.0
O, P'-DDD	<0.20
O, P'-DDE	<0.20
O, P'-DDT	<0.20
TOTAL BHC	0.15
TOTAL DDT	<0.20

SURROGATE PERCENT RECOVERIES

DBC (%)

80



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002271
DATE EXTRACTED : N/A
DATE ANALYZED : 02/27/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<10
2-BUTANONE (MEK)	<1
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<1
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<10
2-CHLOROETHYL VINYL ETHER	<5
BROMOFORM	<10
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	94
BFB (%)	99
TOLUENE-D8 (%)	101



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 002271

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002271

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 00229201

DATE EXTRACTED : N/A
DATE ANALYZED : 02/27/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	% SPIKED	DUP. SAMPLE REC.		DUP. % SAMPLE REC.	RPD
				SPIKED	SAMPLE REC.		
1,1-DICHLOROETHENE	<1	50	42	84	47	94	11
TRICHLOROETHENE	<1	60	59	98	66	110	12
CHLOROBENZENE	<1	60	61	102	64	107	5
TOLUENE	<1	60	58	97	62	103	6
BENZENE	<1	60	55	92	60	100	8

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002271
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.50
CHLORDANE	<0.020
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.10
DIELDRIN	<0.050
ENDOSULFAN I	<0.10
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<1.0
TOXAPHENE	<0.50
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.020
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.010
TOTAL BHC	<0.020
TOTAL DDT	

SURROGATE PERCENT RECOVERIES

DBC (%)

79



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002271

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
REF I.D. : 00230401

DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/11/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED RESULT	DUP.	DUP.	% SPIKED SAMPLE REC.	% SPIKED SAMPLE REC.	RPD
			SPIKED SAMPLE REC.	SAMPLE CONC.			
LINDANE	0.060	0.19	0.17	58	0.19	68	11
HEPTACHLOR	<0.25	0.19	0.12	63	0.13	68	8
ALDRIN	<0.25	0.19	0.093	49	0.11	58	17
DIELDRIN	<0.50	0.47	0.33	70	0.33	70	0
ENDRIN	<0.50	0.47	0.35	74	0.38	81	8
4,4' DDT	<0.10	0.47	0.42	89	0.41	87	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 002271

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 02/22/90
REPORT DATE : 03/23/90

PARAMETER UNITS 01

PH UNITS 7.55



Analytical Technologies

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 002271

PARAMETER	UNITS	ATI I.D.	SAMPLE	DUP.	SPIKED	SPIKE	%
			RESULT	RESULT	RPD	SAMPLE CONC	REC
PH	UNITS	00227101	7.55	7.58	0	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



GCMS - RESULTS

ATI I.D. : 00229201

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : G-11
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/23/90
DATE RECEIVED : 02/23/90
DATE EXTRACTED : N/A
DATE ANALYZED : 02/27/90
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	96
BFB (%)	103
TOLUENE-D8 (%)	100



Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 00229201

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00229201

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : G-11
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/23/90
DATE RECEIVED : 02/23/90
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P,P'-DDD	<0.020
P,P'-DDE	<0.020
P,P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O,P'-DDD	<0.020
O,P'-DDE	<0.020
O,P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

103



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002292
DATE EXTRACTED : N/A
DATE ANALYZED : 02/27/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYL ETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	94
BFB (%)	99
TOLUENE-D8 (%)	101



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 002292

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002292

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 00229201

DATE EXTRACTED : N/A
DATE ANALYZED : 02/27/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	RESULT SPIKED	DUP.	DUP.	RPD		
			SPIKED %	SPIKED %			
1,1-DICHLOROETHENE	<1	50	42	84	47	94	11
TRICHLOROETHENE	<1	60	59	98	66	110	12
CHLOROBENZENE	<1	60	61	102	64	107	5
TOLUENE	<1	60	58	97	62	103	6
BENZENE	<1	60	55	92	60	100	8

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002292
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P, P'-DDD	<0.020
P, P'-DDE	<0.020
P, P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O, P'-DDD	<0.020
O, P'-DDE	<0.020
O, P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

79



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002292

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 00230401

DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/11/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	% SPIKED	DUP.	DUP.	RPD
				SPIKED SAMPLE REC.	% SAMPLE REC.	
LINDANE	0.060	0.19	0.17	58	0.19	68
HEPTACHLOR	<0.25	0.19	0.12	63	0.13	68
ALDRIN	<0.25	0.19	0.093	49	0.11	58
DIELDRIN	<0.50	0.47	0.33	70	0.33	70
ENDRIN	<0.50	0.47	0.35	74	0.38	81
4,4' DDT	<0.10	0.47	0.42	89	0.41	87

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc. GENERAL CHEMISTRY RESULTS

ATI I.D. : 002292

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 02/23/90
REPORT DATE : 03/23/90

PARAMETER UNITS 01

PH UNITS 7.95



Analytical Technologies GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 002292

PARAMETER	UNITS	SAMPLE	DUP.	SPIKED	SPIKE	%		
		ATI I.D.	RESULT	RESULT	RPD	SAMPLE CONC	REC	
PH	UNITS	00230601	8.28	8.30	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00230401

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : BF-7
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/24/90
DATE RECEIVED : 02/24/90
DATE EXTRACTED : N/A
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : 500

COMPOUNDS	RESULTS
CHLOROMETHANE	<5000
BROMOMETHANE	<5000
VINYL CHLORIDE	<500
CHLOROETHANE	<500
METHYLENE CHLORIDE	<2500
ACETONE	<5000
CARBON DISULFIDE	<500
1,1-DICHLOROETHENE	<500
1,1-DICHLOROETHANE	<500
1,2-DICHLOROETHENE (TOTAL)	<500
CHLOROFORM	<500
1,2-DICHLOROETHANE	<500
2-BUTANONE (MEK)	<5000
1,1,1-TRICHLOROETHANE	<500
CARBON TETRACHLORIDE	<5000
VINYL ACETATE	<5000
BROMODICHLOROMETHANE	<500
1,1,2,2-TETRACHLOROETHANE	<500
1,2-DICHLOROPROPANE	<500
CIS-1,3-DICHLOROPROPENE	<500
TRICHLOROETHENE	<500
DIBROMOCHLOROMETHANE	<500
1,1,2 TRICHLOROETHANE	<500
BENZENE	<500
TRANS-1,3-DICHLOROPROPENE	<500
2-CHLOROETHYL VINYL ETHER	<5000
BROMOFORM	<2500
2-HEXANONE (MBK)	<5000
4-METHYL-2-PENTANONE (MIBK)	<5000
TETRACHLOROETHENE	<500
TOLUENE	<1000
CHLOROBENZENE	49000
ETHYL BENZENE	<500
STYRENE	<500
TOTAL XYLENES	<500
DICHLOROBENZENES	<2500

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	94
BFB (%)	95
TOLUENE-D8 (%)	97



Analytical Technologies

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 00230401

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00230401

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : BF-7
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/24/90
DATE RECEIVED : 02/24/90
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/11/90
UNITS : UG/L
DILUTION FACTOR : 5

COMPOUNDS	RESULTS
ALDRIN	<0.25
ALPHA - BHC	<0.050
BETA - BHC	<0.050
GAMMA-BHC (LINDANE)	0.060
DELTA - BHC	<0.050
CHLORDANE	<2.5
P,P'-DDD	<0.10
P,P'-DDE	<0.10
P,P'-DDT	<0.10
DIELDRIN	<0.50
ENDOSULFAN I	<0.25
ENDOSULFAN II	<0.50
ENDOSULFAN SULFATE	<0.50
ENDRIN	<0.50
ENDRIN KETONE	<0.25
HEPTACHLOR	<0.25
HEPTACHLOR EPOXIDE	<0.25
TOXAPHENE	<5.0
METHOXYCHLOR	<2.5
AROCLOR 1016	<2.5
AROCLOR 1221	<2.5
AROCLOR 1232	<2.5
AROCLOR 1242	<2.5
AROCLOR 1248	<2.5
AROCLOR 1254	<2.5
AROCLOR 1260	<2.5
O,P'-DDD	<0.10
O,P'-DDE	<0.10
O,P'-DDT	<0.10
TOTAL BHC	0.060
TOTAL DDT	<0.10

SURROGATE PERCENT RECOVERIES

DBC (%)



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002304
DATE EXTRACTED : N/A
DATE ANALYZED : 03/09/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<10
2-BUTANONE (MEK)	<1
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<1
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<2
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	101
BFB (%)	105
TOLUENE-D8 (%)	108



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 002304

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002304

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 00230601

DATE EXTRACTED : N/A
DATE ANALYZED : 03/10/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	SPIKED %	DUP.	DUP.	RPD
			RESULT SPIKED	SAMPLE REC.	
1,1-DICHLOROETHENE	<1	40	31	77	0
TRICHLOROETHENE	<1	60	53	88	0
CHLOROBENZENE	2	60	56	90	0
TOLUENE	<2	60	54	90	3
BENZENE	<2	50	49	98	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002304
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P, P'-DDD	<0.020
P, P'-DDE	<0.020
P, P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.10
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O, P'-DDD	<0.020
O, P'-DDE	<0.020
O, P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

79



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002304

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
REF I.D. : 00230401

DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/11/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED SPIKED % REC. SAMPLE REC.	DUP.	DUP.	RPD
			SPIKED	% REC.	
LINDANE	0.060	0.19 0.17 58 0.19 68			11
HEPTACHLOR	<0.25	0.19 0.12 63 0.13 68			8
ALDRIN	<0.25	0.19 0.093 49 0.11 58			17
DIELDRIN	<0.50	0.47 0.33 70 0.33 70			0
ENDRIN	<0.50	0.47 0.35 74 0.38 81			8
4,4' DDT	<0.10	0.47 0.42 89 0.41 87			2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 002304

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 02/24/90
REPORT DATE : 03/23/90

PARAMETER UNITS 01

PH UNITS 7.05



Analytical Technologies GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 002304

PARAMETER	UNITS	ATI I.D.	SAMPLE	DUP.	SPIKED	SPIKE	%
			RESULT	RESULT	RPD	SAMPLE CONC	REC
PH	UNITS	00230601	8.28	8.30	0	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00230601

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : LW-1
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/25/90
DATE RECEIVED : 02/26/90
DATE EXTRACTED : N/A
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS

RESULTS

CHLOROMETHANE <10
BROMOMETHANE <10
VINYL CHLORIDE <1
CHLOROETHANE <1
METHYLENE CHLORIDE <5
ACETONE <10
CARBON DISULFIDE <1
1,1-DICHLOROETHENE <1
1,1-DICHLOROETHANE <1
1,2-DICHLOROETHENE (TOTAL) <1
CHLOROFORM <1
1,2-DICHLOROETHANE <1
2-BUTANONE (MEK) <10
1,1,1-TRICHLOROETHANE <1
CARBON TETRACHLORIDE <1
VINYL ACETATE <10
BROMODICHLOROMETHANE <1
1,1,2,2-TETRACHLOROETHANE <1
1,2-DICHLOROPROPANE <1
CIS-1,3-DICHLOROPROPENE <1
TRICHLOROETHENE <1
DIBROMOCHLOROMETHANE <1
1,1,2 TRICHLOROETHANE <1
BENZENE <1
TRANS-1,3-DICHLOROPROPENE <1
2-CHLOROETHYLVINYLETHER <10
BROMOFORM <5
2-HEXANONE (MBK) <10
4-METHYL-2-PENTANONE (MIBK) <10
TETRACHLOROETHENE <1
TOLUENE <2
CHLOROBENZENE 2
ETHYL BENZENE <1
STYRENE <1
TOTAL XYLENES <1
DICHLOROBENZENES <5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	99
BFB (%)	101
TOLUENE-D8 (%)	104



Analytical Technologies ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

ATI I.D. : 00230601

MATRIX : WATER

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00230601

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONROSE
CLIENT I.D. : LW-1
SAMPLE MATRIX : WATER

DATE SAMPLED : 02/25/90
DATE RECEIVED : 02/26/90
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/11/90
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.010
CHLORDANE	<0.50
P, P'-DDD	<0.020
P, P'-DDE	<0.020
P, P'-DDT	<0.020
DIELDRIN	<0.10
ENDOSULFAN I	<0.050
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<0.050
TOXAPHENE	<1.0
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O, P'-DDD	<0.020
O, P'-DDE	<0.020
O, P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)

103



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002306
DATE EXTRACTED : N/A
DATE ANALYZED : 03/09/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<10
2-BUTANONE (MEK)	<1
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<10
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2 TRICHLOROETHANE	<1
BENZENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYL VINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<2
CHLOROBENZENE	<1
ETHYL BENZENE	<1
STYRENE	<1
TOTAL XYLEMES	<1
DICHLOROBENZENES	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	101
BFB (%)	105
TOLUENE-D8 (%)	108



Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON

ATI I.D. : 002306

UNITS : UG/L

COMPOUNDS

RESULTS

NONE DETECTED

N/A



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 002306

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 00230601

DATE EXTRACTED : N/A
DATE ANALYZED : 03/10/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	RESULT SPIKED	DUP.	DUP.	RPD
			SPIKED %	SPIKED %	
1,1-DICHLOROETHENE	<1	40	31	77	0
TRICHLOROETHENE	<1	60	53	88	0
CHLOROBENZENE	2	60	56	90	0
TOLUENE	<2	60	54	90	3
BENZENE	<2	50	49	98	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$



REAGENT BLANK

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
CLIENT I.D. : REAGENT BLANK

ATI I.D. : 002306
DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/10/90
UNITS : UG/L
DILUTION FACTOR : N/A

COMPOUNDS

RESULTS

ALDRIN	<0.050
ALPHA - BHC	<0.010
BETA - BHC	<0.010
GAMMA-BHC (LINDANE)	<0.010
DELTA - BHC	<0.50
CHLORDANE	<0.020
P, P'-DDD	<0.020
P, P'-DDE	<0.020
P, P'-DDT	<0.10
DIELDRIN	<0.050
ENDOSULFAN I	<0.10
ENDOSULFAN II	<0.10
ENDOSULFAN SULFATE	<0.10
ENDRIN	<0.10
ENDRIN KETONE	<0.050
HEPTACHLOR	<0.050
HEPTACHLOR EPOXIDE	<1.0
TOXAPHENE	<0.50
METHOXYCHLOR	<0.50
AROCLOR 1016	<0.50
AROCLOR 1221	<0.50
AROCLOR 1232	<0.50
AROCLOR 1242	<0.50
AROCLOR 1248	<0.50
AROCLOR 1254	<0.50
AROCLOR 1260	<0.50
O, P'-DDD	<0.020
O, P'-DDE	<0.020
O, P'-DDT	<0.020
TOTAL BHC	<0.010
TOTAL DDT	<0.020

SURROGATE PERCENT RECOVERIES

DBC (%)



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D.

: 002306

TEST : EPA 8080 (ORGANOCHLORINE PESTICIDES AND PCB'S)

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE
REF I.D. : 00230401

DATE EXTRACTED : 02/27/90
DATE ANALYZED : 03/11/90
SAMPLE MATRIX : WATER
UNITS : UG/L

COMPOUNDS	SAMPLE CONC.	RESULT SPIKED	DUP.	DUP.	RPD		
			SPIKED %	SPIKED %			
LINDANE	0.060	0.19	0.17	58	0.19	68	11
HEPTACHLOR	<0.25	0.19	0.12	63	0.13	68	8
ALDRIN	<0.25	0.19	0.093	49	0.11	58	17
DIELDRIN	<0.50	0.47	0.33	70	0.33	70	0
ENDRIN	<0.50	0.47	0.35	74	0.38	81	8
4,4' DDT	<0.10	0.47	0.42	89	0.41	87	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical**Technologies**, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 002306

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

DATE RECEIVED : 02/26/90
REPORT DATE : 03/23/90

PARAMETER	UNITS	01
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PH	UNITS	8.28
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Analytical Technologies GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : HARGIS & ASSOC.-TUCSON
PROJECT # : 218.2
PROJECT NAME : MONTROSE

ATI I.D. : 002306

PARAMETER	UNITS	ATI I.D.	SAMPLE	DUP.	SPIKED	SPIKE	%
			RESULT	RESULT	RPD	SAMPLE CONC	REC
PH	UNITS	00230601	8.28	8.30	0	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Appendix L



HARGIS + ASSOCIATES, INC.

APPENDIX L

**SAMPLING DIFFICULTIES AND DEVIATIONS FROM THE
SAMPLING PLAN AND
THE QUALITY ASSURANCE PROJECT PLAN**



APPENDIX L

SAMPLING DIFFICULTIES AND DEVIATIONS FROM THE SAMPLING PLAN AND THE QUALITY ASSURANCE PROJECT PLAN

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APPENDIX L

SAMPLING DIFFICULTIES AND DEVIATIONS FROM THE SAMPLING PLAN AND THE QUALITY ASSURANCE PROJECT PLAN

1.0 DIFFICULTIES ENCOUNTERED DURING MONITOR WELL CONSTRUCTION AND GROUNDWATER SAMPLING

1.1 MONITOR WELL CONSTRUCTION

The difficulties encountered during the monitor well construction conducted during the period August 1989 through January 1990 were as follows:

- .. During the construction of the screened interval in Lynwood aquifer monitor well LW-1, circulation was lost immediately after drilling through the Haliburton cement shoe. Approximately 1,500 gallons of fresh drilling fluids were lost to the formation after encountering gravel and coarse sand. Circulation was established by increasing the mud viscosity. Exploratory borings at other locations encountered fine to medium sand at this stratigraphic interval. After well completion, 5,600 gallons were purged from the well during development. An additional 380 gallons or three casing volumes were purged during the first sampling round.

1.2 GROUNDWATER SAMPLING

The difficulties encountered during groundwater sampling conducted during the period October 1989 through February 1990 are as follows:



HARGIS + ASSOCIATES, INC.

- .. The first quarterly groundwater sampling round initially scheduled for October 1989 was completed during two separate periods due to theft of sampling equipment. Monitor wells not sampled in October 1989 were sampled during the period November 16 through 18, 1989.
- .. Monitor well LG-1 was not sampled during the October-November 1989 quarterly groundwater sampling round because the dedicated sample pump had malfunctioned.



2.0 DEVIATIONS FROM THE SAMPLING PLAN AND THE
QUALITY ASSURANCE PROJECT PLAN DURING
MONITOR WELL CONSTRUCTION AND
GROUNDWATER SAMPLING

2.1 MONITOR WELL CONSTRUCTION

Wells were constructed in accordance with the Sampling Plan (SAP) (Hargis + Associates, Inc., 1988a) and the Quality Assurance Project Plan (QAPP) (Hargis + Associates, Inc., 1988b) except for the following deviations:

- .. Based on experience at multiple sites, it is possible that the very fine sand grout filter may increase the permeability of the bentonite seal by infiltrating between the spaces of the granular bentonite. It was concluded that the bentonite seal and the filter pack above the top of the screen would be sufficient to prevent grout invasion.
- .. In construction of Lynwood aquifer monitor wells LW-1 and LW-2, a 16-inch boring was drilled to allow adequate annular space for the 10-inch conductor casing. In construction of all Bellflower and Gage monitor wells and the third Lynwood aquifer monitor well, an underreamer bit was used to drill a boring below the conductor casing that was wider in diameter than the conductor casing. This procedure reduced the volume of cuttings and drilling fluid generated at the site.
- .. The emplacement of sand filter material and bentonite pellet well seal material was accomplished by gravity emplacement instead of by tremie pipe per the approval of Mr. Ron Lubke of Metcalf & Eddy, Inc. (1989).



- .. The QAPP (Hargis + Associates, Inc., 1988b) stated that the sand filter pack would be installed 2 feet above the screen. Conditions did not allow for such exact placement. Monitor wells BF-13, BF-14, BF-15, G-8, G-12, and LW-1 were constructed with the sand filter installed from 4 to 11 feet above the screen. Monitor well G-13 was constructed with the sand filter installed 36 feet above the screen, 31 feet inside the conductor casing. During the installation of the filter pack, adequate time was not allowed for sand held in suspension to settle before additional sand filter material was added. Filter pack placed inside the steel conductor casing does not impact monitor well data because the steel casing is devised to prevent cross-contamination from higher hydrogeologic units. The bentonite grout seal placed above the filter pack inside the steel conductor casing is designed to prevent surface water infiltration between the well casing and the conductor casing.
- .. Bellflower sand monitor wells (BF-wells) were originally designed to be constructed with 10 feet of stainless steel wire wrap with 0.045-inch slots. Based on sieve analysis of the aquifer material on-property where lithology varied off-site, some wells were installed with 20 feet of screen and/or 0.020-inch screen slot size.

2.2 GROUNDWATER SAMPLING

Groundwater sampling was performed in accordance with the SAP (Hargis + Associates, Inc., 1988a) and the QAPP (Hargis + Associates, Inc., 1988b) except for the following deviations:

- .. Conductivity and pH meters were not calibrated twice daily for some of the sampling rounds.



- .. Water level sounders were rinsed with distilled water during sampling activities.
- .. Additional field blanks were prepared at specific wells for EPA Method 608/8080 analysis during the October-November 1989 quarterly groundwater sampling round. These wells were selected based upon trending of previous analytical results.
- .. Thirteen monitor wells, including monitor well LG-1, were not sampled during the February 1990 quarterly groundwater sampling round because of a reduction in scope of groundwater sampling (EPA, 1989). However, monitor well LG-1 should have been sampled during the February 1990 quarterly groundwater sampling round because it was not sampled during the October-November 1989 quarterly groundwater sampling round.
- .. A second change in scope reduced groundwater sampling for pesticide analysis. Groundwater samples were not collected for pesticide analysis from monitor wells which did not contain detectable pesticide concentrations in the previous two sampling rounds (EPA, 1990). Twenty-three monitor wells were not sampled for pesticide analysis during the February 1990 quarterly groundwater sampling based on this change in scope.
- .. A groundwater sample was not collected from monitor well MW-2 during the October-November 1989 and the February 1990 quarterly groundwater sampling rounds due to the presence of dense free product in the well.



3.0 REFERENCES CITED

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